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REPORT

OF THE

SURGEON-GENERAL U. S. NAVY,

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY,

TO THE

SECRETARY OF THE NAVY.

1904.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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Chief of the Bureau of Medicine and Surgery,

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REPORT

OF THE

SURGEON-GENERAL UNITED STATES NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1904.

SIR: In obedience to instructions contained in Department's letter of July 5, 1904, I have the honor to submit a report of the operations of this Bureau for the year ending June 30, 1904.

The report embraces a statement of reasons for increase of estimates and of the condition of the naval hospital fund, matters relating to the Medical Corps, the Hospital Corps, and to the naval hospitals, with recommendations for their improvement, recommendations as to hospital ships, report on infections on training and receiving ships and training stations, report on surgical operations, recommendations as to barracks for recruits, report on navy pensions, recommendation as to the utilization of the services of Bureau and Medical Corps in an advisory capacity on all matters of sanitary importance affecting the naval personnel, recommendations as to establishment of a camp for care of tuberculous patients, recommendation as to membership on general board and board of inspection and survey, recommendation as to book of instructions for the Medical Corps, recommendations as to dentists and women nurses, report on Naval Museum of Hygiene and Medical School, estimates for the fiscal year ending June 30, 1906, report on the health of marine brigade, Isthmus of Panama and the statistical report for the year, together with reports of special sanitary, medical, and surgical interest.

ESTIMATES.

In submitting estimates for the fiscal period ending two years hence, due allowance must be made for increasing expense of meeting the needs of the medical establishment of a steadily growing service. Demands incident to the commissioning of additions to the fleet, the maintenance of a large number of vessels already in service, the establishment of new naval stations, the development of those already established, and the increase of the personnel must be provided for by larger appropriations for the various funds controlled by the Bureau.

To these causes the necessity for several increases over estimates for the fiscal year ending in 1905 is attributed. It should be remembered that the hospital establishments of the Navy were designed for the accommodation of a service not exceeding the strength of 15,000, and are, consequently, in general, inadequate for the proper care of the sick and injured of an enlisted personnel now numbering, including apprentices and the Marine Corps, an aggregate force of about 40,000 individuals. The necessity for hospitals of greater capacity has naturally followed. There is need for remodeling and extending nearly all of the important naval hospitals, more particularly those at Chelsea, Mass., Newport, R. I., Norfolk, Va., and Pensacola, Fla. In furtherance of the purpose of removing the medical staff from the hospital buildings, with a view to gaining as much additional ward space as practicable, the Bureau submits an estimate for quarters for medical officers at naval hospitals at Chelsea, Mass., Newport, R. I., and Pensacola, Fla.

Estimates are also submitted under "Public works" for the completion and renovation of hospital buildings, as follows:

For the naval hospital, Washington, D. C., $40,000, to enable the Bureau to complete the building upon the original plans, and $20,000 for the erection of an additional ward, $60,000 in all.

For the construction of a building for naval hospital purposes at Sitka, Alaska, $10,000.

For the renovation of the present hospital buildings and for the erection of new wards at Norfolk, Va., $200,000.

For the renewal of the present hospital buildings and for the erection of quarters for the medical staff, naval hospital, Pensacola, $50,000.

For the acquisition of additional land adjacent to the naval hospital, Yokohama, Japan, $3,000.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand July 1, 1903	$254, 339. 61
Transferred to the credit since July 1, 1903	317, 099. 32
Credit by appropriation for fiscal year 1903	40, 000. 00
Total	611, 438. 93
Expended since July 1, 1903	346, 180. 22
Balance on hand June 30, 1904	$265, 258. 71

MEDICAL SERVICE AT SAMOA AND GUAM.

The professional services of the medical officer stationed at Tutuila, Samoa, have been freely given to the natives and as freely availed of. Medical supplies have been furnished as urgent needs and the dictates of humanity demanded. The medical officer reports that during the year the entire native population has been vaccinated with vaccine virus supplied by the Bureau. At Guam the medical officers have rendered most valuable service to the native population, which is entirely dependent upon them for professional care. Without medicines, and without means or doctors other than the Navy has supplied, it has been impossible to avoid furnishing certain medical supplies when suffering and necessity alike made appeals for help. By giving systematic instruction and training in the requirements of modern and hygienic care to an intelligent class of women, a number of native midwives have been provided through the efforts of the medical officers, whose ministrations have accomplished much good to the ignorant and impoverished families to be found at this naval station. It is the opinion of the Bureau that the medical officers who have been stationed at Guam and at Tutuila have most worthily served the cause of humanity and are deserving of praise for efficient and self-sacrificing professional services to the natives at both of these insular possessions.

NAVAL HOSPITALS FOR CHARLESTON, S. C., GUANTANAMO, CUBA, AND OLONGAPO, P. I.

The development of the naval stations at Charleston, S. C., at Guantanamo, Cuba, and at Olongapo, P. I., makes it necessary to invite attention to the fact that a naval hospital will be required at each of these localities. The question of appropriate sites has been under consideration, and the erection of suitable buildings should not be too long deferred. The completion of the hospital at Canacao, P. I., with a supplementary sick quarters at Olongapo, P. I., will supply needed accommodations for awhile in the Philippines, but at Guantanamo the need is more urgent, and it is recommended that Congress be asked to make provision for the construction of a hospital at this locality adequate to the demands of the station. The urgency of the need of a hospital at Charleston, S. C., will be dependent upon the rapidity of progress made in completion and utilization of the extensive plant projected and being provided at this locality. The Bureau recommends that timely action be taken to secure an appropriation for the erection of a suitable hospital at each of these naval stations in advance of urgent need of provision for the care of the sick.

MEDICAL CORPS.

The Board of Medical Examiners for admission of assistant surgeons has remained in continuous session during the year, and every effort has been made to fill the vacancies in the Medical Corps. At the end of the year 1903 there remained 2 vacancies. On January 1, 1904, the annual increase allowed by the Fifty-seventh Congress added 25 more, and, with 3 retirements for disability, the total vacancies to be filled numbered 30. Many inquiries for information regarding the examination have been received, and numerous permits have been issued to applicants. Further intelligence of the opportunity to secure commissions in the Medical Corps was spread by personal visits to leading medical colleges in the East and Middle West by the president of the Naval Medical School, who, by invitation, addressed the various bodies of medical students on the subject. Of the 99 applicants who appeared for examination 23 were found qualified and granted commissions. It was thought that the favorable legislation of 1903, giving rank for grade and increasing the number of surgeons and establishing a closer parallelism between the army and navy medical establishments, would so serve to popularize the naval medical service among qualified young professional men as to make recruiting for it an easy matter. The Bureau regrets to state that unexpected difficulty has been encountered.

In this connection it is not thought amiss to note the fact, in some measure explanatory, that the present pay of the assistant surgeon of the Navy while on shore duty is 15 per cent less than the pay received by the assistant surgeon of the Army, and also to invite attention to certain general considerations relative thereto. Requirements for graduation at the leading medical colleges of the United States include attendance for a period of four years employed in the study of professional subjects. The requirements for admission to the Medical Corps of the Navy are such that an applicant must have had some clinical and practical training, which involves an addition of about one year of actual professional work to his four years course at the medical school. The necessity for maintaining a reasonably high standard of intelligence and scholarship among the members of the Medical Corps is responsible for the fact that only about 23 per cent of applicants are successful. In securing qualified men the Medical Corps of the Navy has to compete with the Medical Corps of the Army and the Public Health and Marine-Hospital Service, both of which have long been, among young professional men, more popular branches of the Government medical service. It is stated now, however, that the Army medical service is not popular with clever and ambitious young professional men of the country because of insufficient inducements as a career, and if this be so it is not difficult to understand, in view of the lower rate of pay offered, why the Medical Corps of the Navy fails to be as attractive to the same class.

There has always been difficulty in securing qualified medical men for the Navy. Recent legislation giving assistant surgeons of the Navy the rank, pay (less 15 per cent for shore duty), and allowances of assistant surgeons of the Army, has more nearly equalized the advantages offered by the two branches of the military service. There is sound reason for a comparison of the status and pay of these two grades, inasmuch as they perform the same kind of service for the Government, are drawn from the same civilian source, have practically identical qualifications, and it would seem best for the public service that there be equalization of their emoluments in every detail. The highest interest of the entire naval personnel, official and enlisted, is too seriously involved in the success of the effort now being made to secure and maintain the highest state of professional efficiency in the Medical Corps for it to be wise to place it at a disadvantage, in comparison with the medical staff of the Army, by offering inferior inducements to civilian medical men who might be inclined to enter the naval service.

ACTING ASSISTANT SURGEONS.

Active employment has been found for the acting assistant surgeons, and without the aid secured from their employment the Bureau would have had more serious embarrassment in meeting the service demands for medical officers than has been experienced. Much of the recruiting duty with traveling parties has fallen to these medical officers. Considering their lack of experience with service conditions, their work has been fairly efficient and satisfactory. This exigency of service has, no doubt, been the reason that only 9 out of 25 authorized by law have qualified for admission to the regular medical establishment. Appointments to this grade are limited to applicants coming within the age limits prescribed for entry as assistant surgeon, with the idea that the more industrious and ambitious members would subsequently seek entry into the regular corps. It is the desire of the Bureau to keep the acting list full and utilize it as a waiting list for promising candidates qualifying for a commission in the regular establishment, and at the same time to supply relief to an overworked corps.

INCREASE IN GRADES OF MEDICAL DIRECTOR AND MEDICAL INSPECTOR.

In its last annual report the Bureau renewed its recommendation of the previous year that the grade of medical inspector be increased, and stated that it had been necessary in responding to demands for details of medical officers for fleet duty to draw upon the senior ten numbers of the grade of surgeon for assignments that properly belonged to the medical inspector's grade. There are now afloat nine squadrons under the command of flag officers, to each of which a medical inspector should properly be assigned; but with the total number available for duty this is impracticable, keeping in view the needs elsewhere. There are important details beyond seas—at Cavite, P. I., Yokohama, Japan, and upon the hospital ship *Relief*—which require officers of this grade, and these, together with the demands at shore stations, and on boards where officers of experience are required, create a necessity for an increase in this grade.

The line officer of the former engineer corps with corresponding rank is, under the law, not assigned to sea duty. The medical inspector is very much older than, and senior in rank to, other officers of the wardroom, where his living quarters are, and this circumstance does not lessen for him the burden of sea duty. It is not for the best interests of the service that a larger proportion of time at sea should be exacted of medical inspectors than is required of the corresponding rank in the line. The personnel act of March 3, 1899, made no provision for increase in any grade of the Medical Corps, but materially increased the upper grades of the line—that of commander from 85 to 103, and that of captain from 45 to 68. In 1903, however, Congress granted a large increase in the three lower grades of the Medical Corps but no increase in the two higher grades. There are now the same number of medical directors and medical inspectors (with a medical corps prospectively increased by existing law to 345 and with an aggregate strength of about 40,000 men in the Navy and Marine Corps) as was allowed in 1883, when the Medical Corps numbered 171 and when the enlisted force of the Navy and Marine Corps was 16,000. In 1883 the number authorized in each of these grades was a little less than 9 per cent of the whole corps; in 1904 the percentage has fallen to 6+, and in 1908, when the Medical Corps reaches its authorized strength, it will be further reduced to 4+ per cent.

CHANGE OF TITLES OF OFFICERS OF THE MEDICAL CORPS.

In the report of the preceding year comment was made upon the lack of military significance in the titles given the officers in the different grades of the Medical Corps, and upon the unsuitableness of the terms "assistant surgeon" and "passed assistant surgeon" as applicable to professional men of the age and attainments of these officers, who are frequently in independent charge of the medical department of a ship or station. The various grades in the Medical Corps are well defined, but their designations convey no idea of the rank of a medical officer in the naval service. There is an honorable pride felt by every medical officer in the distinction conferred by the familiar title of doctor and surgeon, and there is no desire to subordinate the professional title to the military one, but there is a proper feeling and desire that titles distinctly setting forth his official rank in the Navy, as well as his grade in his special corps, should be given the medical officer. The Bureau renews its recommendation that Congress be asked for legislation changing the name of the different grades of the Medical Corps now existing, as follows: In place of surgeon-general, surgeon-admiral; and in the other grades, medical director to become surgeon-captain; medical inspector, surgeon-commander; surgeon, surgeon-lieutenant-commander; passed assistant surgeon, surgeon-lieutenant, and assistant surgeon, surgeon-lieutenant (junior grade).

NAVAL MEDICAL SCHOOL.

The Naval Medical School, at the beginning of its second year, was in a more thorough condition of preparedness for all its work than in the initial session of last year, and it is now on a firm footing. The completion of improvements in the museum building to meet the requirements of larger classes increased the facilities for instruction, and supplies adequate accommodations. Thirty-one recently commissioned assistant surgeons, forming the second class of student officers, were assembled in October, 1903. The course of special training outlined in the previous report of the Bureau was actively pursued for a period of five and a half months, and the session ended with appropriate graduating exercises held in the hall of the National Museum on March 21, 1904.

The manifest appreciation of the privileges afforded by the school on the part of the students, and the industry displayed, has demonstrated the utility of the prescribed course. With the broadening of the field of professional training, there has resulted an increase of efficiency for performance of the details of the duties of a medical officer, in which the naval service has a decided and continuous interest. The instructors at the school have been at the same time performing the duties of members of the Medical Examining Board, and their work has been able and earnest.

The school has been most fortunate in having the hearty interest and sympathetic cooperation of the local medical profession. Most efficient and courteous assistance has been given by the Army Medical School and the medical department of the Columbian University. The work of instruction by the faculty has been supplemented in the most valuable way by the gratuitous assistance of eminent scholars and scientists, whose lectures enriched the course and whose services have been highly appreciated. Among these gentlemen were Col. W. C. Gorgas, Maj L. A. La Garde, Lieut. James Carroll, and Dr. William M. Gray, of the Medical Corps of the U. S. Army; Dr. Charles W. Stiles and Passed Asst. Surg. M. J. Rosenau, of the Public Health and Marine-Hospital Service; Prof. L. O. Howard, entomologist of the Department of Agriculture; Dr. Juan Guiteras, of Habana, Cuba, and Dr. William N. Cogan, dean of the faculty of the dental department of Georgetown University.

The following members of the second class attained the distinction of securing over 90 per cent of the total general average marks, and in the order named, viz: W. W. Verner, R. L. Sutton, F. W. S. Dean, B. H. Dorsey, A. J. Geiger, J. P. DeBruler, P. S. Rossiter, C. F. Ely, C. E. Ryder, J. R. Dykes, W. B. Smith.

It is the purpose of the Bureau to enlarge the sphere of usefulness of this school by extending the privileges of its laboratories and course of special instruction to medical officers of the Navy whenever the increase of the corps has removed the necessity for continuous active service of the medical officers and when the public exigency permits their being so employed for brief periods. The professional benefit of such a course will be very great, and the naval service at large will be the gainer thereby.

HOSPITAL CORPS TRAINING SCHOOL.

The work of training the Hospital Corps has been actively and systematically carried on in the school at the Norfolk Naval Hospital, classes averaging 42 students being assembled as the exigency of the service allowed. So far 200 members have attended the course, about 25 per cent of the force. Upon completion of the course the apprentices have been sent to the various naval hospitals for further practical training before assignments to sea duty. A scheme for the continued instruction in the details of their duty, after assignment to vessels, has been devised under the supervision of the Bureau, which, it is hoped, will soon be enforced as a part of the routine drill on board ship, and will accomplish much good. The schedule of study and drill at the school has been fully reported in a former annual report, and remains the same with the addition of a short course in clinical microscopy for hospital stewards. Physical exercises and athletic sports have been encouraged, an athletic outfit being provided, and the interest, industry, and conduct of the apprentices have been most favorably commented upon. Surg. Middleton S. Elliott, U. S. Navy, is in charge of the school, with the same competent assistants as reported in the previous year.

NAVAL HOSPITAL CORPS.

The conduct and work of the Hospital Corps during the year has been highly satisfactory. With exception of a few hospital stewards, possessing special qualifications or being graduates in pharmacy, recruiting has been confined to transfers from other branches of the service and original enlistments in the rating of hospital apprentice. The corps numbers, approximately, 775 men, 25 per cent of whom have been given the course of instruction in the school for training at the naval hospital, Norfolk, Va. The organization has reached a stage of development and efficiency which leads the Bureau to hope that it will soon be practicable to supply the rate of hospital steward entirely by men promoted from the lower ratings. Considering the fact that legislation authorizing a Hospital Corps for the Navy was enacted only six years ago, the progress made in the effort to secure for the service a class of trained nurses is a cause for gratification. There is need for a considerable increase in the number of men now employed in the Hospital Corps, and it is regretted that desirable recruits are so few.

The Bureau has been convinced by its study and observation of this corps that its efficiency is much hampered by unsatisfactory provisions of the law authorizing it. The name of hospital apprentice, first class, is a most unsuitable one for a trained nurse, and the pay is insufficient to hold the men of this rating in the service. It is most significant that there are very few—practically no—re-enlistments in this rate. So it appears that these men, unless rated hospital steward, leave the service for more lucrative employment, and unless there is a change of condition it is idle to expect to hold permanently trained nurses in the Navy. Under existing law the pay of a hospital steward is $60 per month, the pay of a hospital apprentice, first class, is $30, and the pay of a hospital apprentice is $20 per month. With such pay the hospital apprentice, first class, is not long satisfied. The Bureau submitted recommendations for legislation to reorganize and increase the efficiency of the Hospital Corps, which were approved by the Department, but upon which Congress did not take action. These recommendations are renewed and are as follows:

First. That the Hospital Corps of the Navy shall consist of chief pharmacists, pharmacists, hospital stewards, baymen (first class), baymen, and hospital apprentices.

Second. That the number of chief pharmacists and pharmacists on the active list shall not exceed 50 in all, the pharmacists to be appointed by the President and have the status of warrant officers; vacancies in the grade of pharmacist to be filled from men holding the rating of hospital steward, subject to such examination as may be prescribed by the Secretary of the Navy; that no pharmacist shall be promoted to the rank of chief pharmacist until he shall have passed an examination as to his mental, moral, physical, and professional qualifications before a board of officers, in accordance with regulations prescribed by the Secretary of the Navy, and that all provisions of law relating to warrant officers of the Navy shall extend to and include all pharmacists of the Hospital Corps.

Third. That the pay of hospital stewards shall be $70 per month; of baymen (first class), $40 per month during their first five years of service and $50 per month thereafter; of baymen, $30 per month, and of hospital apprentices, $20 per month, with such increase for length of service as may now or hereafter be allowed other enlisted men of the Navy.

Fourth. That as many enlisted men of the ratings of hospital steward, bayman (first class), bayman, and hospital apprentice shall be enlisted as may in his judgment be fixed by the Secretary of the Navy; that they shall be a part of the enlisted force provided by law, and that enlisted men of the Navy and Marine Corps shall be eligible for transfer to the Hospital Corps.

Fifth. That the members of the Hospital Corps shall be permanently attached to the Medical Department of the Navy, and that all necessary hospital and ambulance service at naval hospitals, naval stations, navy-yards, and marine barracks, and on vessels of the Navy and Fish Commission shall be performed by members of this corps.

In the opinion of the Bureau such a reorganization of the Hospital Corps is most desirable, and it is urgently recommended that Congress be asked to enact necessary legislation to effect this end.

COMMAND IN THE HOSPITAL CORPS.

Associated with the progressive development of the Hospital Corps along lines of greatest utility to the naval service and increased efficiency is the matter of well-defined military control of its personnel by the medical officers of the Navy. The responsibility for success or failure in results lies with the medical officers who must educate and drill and train for special technical duties the men composing this corps, and full and well-defined authority should be accorded to work out the problem, old-time service prejudices and antagonisms giving place to a harmonious acceptance of new conditions and needs, to the end that the best interests and good of the service may be conserved. The Hospital Corps should soon be recruited to 1,000. For a part of their period of enlistment, under the system of training inaugurated, this body of men is attached to our naval hospitals under the immediate and direct control of medical officers in charge of these establishments, who by custom and regulation are held responsible for their discipline. The Bureau is of the opinion that there should be no limitation to entire military control in the medical department not imposed by law or regulations on cognate subordinate naval commands. The medical officer in charge of the naval hospital should have authority over members of the Hospital Corps, under the authority of the commandant of the station, as now obtains for the commanding officer of the receiving ship or marine barracks with the enlisted personnel under their command.

It is necessary to the dignity and efficiency of the medical officer, alike as to the other naval officers in command of enlisted men, that with responsibility there should go due and unquestioned authority. Otherwise there is embarrassment, weakness of control, and lack of discipline. Since the members of the Hospital Corps are under the immediate direction and control of medical officers, it is for the best interests of the service that this control should in no instance be obscured or diminished by the phrase "in charge," which can be easily perverted or misunderstood. Medical officers of the Navy should have the same kind of status in connection with the Hospital Corps under them as obtains in the case of their brother officers in the Medical Corps of the Army. In the Medical Corps of the Army there is no question of the right to command the members of the Army Hospital Corps. The services of the medical officers of the Navy and of the Hospital Corps are available for the marine force in its various expeditionary detachments, and being in such military association they are thrown under the application of army regulations and discipline. In addition, the association for service of the marine force with the Army occurs, and is liable to recur, and it is not a satisfactory relation for the medical officer of the Navy, who is confronted with his different status as compared with that of the medical officer of the Army. Being engaged in identical duties in such contingencies there is no reason for difference in official status, and there should be an exact correspondence of authority as there is of obligation and duty.

INCREASE IN THE GRADE OF PHARMACIST.

The Bureau renews its recommendation that the number of officers in the only warrant grade of the Hospital Corps be increased to 50, and that the benefits of the laws relating to warrant officers of the Navy now existent and hereafter to be enacted be applicable to them. The need for pharmacists at the principal naval stations and at naval hospitals justifies the increase in numbers requested. Appointments to vacancies in this grade are made after a physical and professional examination to determine qualifications of such hospital stewards as possess records of long and faithful service, and the stimulus of this prospective promotion is a strong incentive to efficient service in the lower grades of the Hospital Corps. The present number of 25 pharmacists is not only inadequate for service needs, but is too small a per cent of the Hospital Corps, which should in the near future be increased to 1,000 men, to properly encourage the laudable ambition of the intelligent and trustworthy men to be found in the hospital stewards of the Navy.

NEW BUILDINGS UNDER CONSTRUCTION AND SPECIAL IMPROVEMENTS.

(New) Naval Hospital, Washington, D. C.—By the act of March 3, 1903, an appropriation of $125,000 was made for the erection of a naval hospital on the grounds of the Naval Museum of Hygiene and Medical School. Plans and specifications for this work were prepared by Mr. Ernest Flagg, architect, and these were approved by the Bureau after most careful study and consideration. After advertisement the first proposals were opened on January 19, 1904, and were as follows:

1. General Supply and Construction Company, 24 State street, New York City	$141,900
2. The Snare & Triest Company, New York City	172,000

Both of these proposals, being in excess of appropriation, were rejected, and the specifications were modified by omitting from the plans the southeast pavilion and connections clear of the roof of the operating pavilion. Proposals were again opened on March 15, 1904, and were as follows:

1. General Supply and Construction Company	$131,420
2. Henderson & Co. (Limited)	136,314
3. The Snare & Triest Co	149,976
4. The Chas. McCaul Company	151,584
5. Henry Schenck Company	167,343
6. L. P. Hazen & Co	199,200

Being again in excess of appropriations, the Bureau recommended a revision of all proposals by the bidders, after omitting from the specifications, among other items, plumbing, heating, and lighting fixtures, and three of the above six bidders responded, as follows:

1. General Supply and Construction Company	$118,045
2. Henderson & Co. (Limited)	128,007
3. L. P. Hazen & Co	164,700

Having made the lowest and only proposal within the amount of the appropriation, the General Supply and Construction Company was awarded the contract, and work was commenced May 29, 1904. Under the terms of the contract the work is to be done by June 1, 1905. In consequence of the necessity of omitting from the plans and specifications the northeast pavilion and all fittings and fixtures for the hospital, the Bureau is compelled to ask that an additional sum of $60,000 be appropriated to finish and properly equip the building, and that the money be made immediately available. The completion of this hospital will enlarge materially the educative facilities of the Naval Medical School, supply a long-needed modern hospital to the naval station, and add a public building worthy of its location in the national capital city.

(New) Naval laboratory.—Under authority of the naval act approved March 3, 1903, advertisement was made for proposals to erect a new

naval laboratory building on the grounds of the United States naval hospital, New York, and bids were opened on January 5, 1904, as follows:

George Vassar's Son & Co	$77,000
L. W. Seaman, jr., & Son	78,500
P. J. Carlin & Co	80,965
J. C. McGuire & Co	82,359
The Snare & Triest Co	79,780
Conners Brothers	87,000

These all being in excess of the amount appropriated ($75,000), the bidders were requested to scale down their bids on the basis of revised specifications, which omitted items not an integral part of the building, viz: Elevators, pipe trench to power house, weighing scale, and lighting fixtures, with the following result:

George Vassar's Son & Co	$69,370
L. W. Seaman, jr., & Son	69,499
P. J. Carlin & Co	71,000
J. C. McGuire & Co	71,435
The Snare & Triest Co	71,720

Contract was entered into on February 8, 1904, with George Vassar's Son & Co., 111 Fifth avenue, New York, N. Y., the lowest bidder, and work was begun on February 19, 1904, under agreement to complete by October 31, 1904. The erection of the building is being satisfactorily pushed, and before a new fiscal year begins it is expected that the ampler space and improved facilities for handling and storing medical supplies which it will afford will facilitate the important work of this establishment. To properly and fully equip this building for service, there will be needed the additional sum of $20,000, for the appropriation of which by Congress request will be made.

Naval Museum of Hygiene and Medical School, Washington, D. C.—To provide space required to accommodate the larger classes of assistant surgeons (made possible by the increase of the Medical Corps authorized by the Fifty-seventh Congress) during course of instruction, and to increase the facilities of the medical school, alterations and improvements were made to the south wing of the museum building. This work consisted of raising the walls one additional story, making new second story, ceilings and roof, and the extension of plumbing and heating to the new rooms, together with the installation of a water tank to supply all the buildings. Drawings for this improvement were prepared by Marsh & Peter, architects, Washington, D. C., and contract was entered into after due advertisement, with C. D. Collins, of Washington, D. C. The work was satisfactorily completed in the contract time, at a cost of $5,673, and it has materially added to the convenience of administration.

Contagious disease hospital and officers' quarters at naval hospital, Mare Island, Cal.—The two cottages for junior medical officers at the Mare Island naval hospital have been completed and occupied during the year. The rooms in the hospital building previously utilized as quarters for the medical staff have, in consequence, become available as additional hospital space for the sick. The cottages have proven very satisfactory. The contagious disease hospital building has been completed, an equipment provided, and it is in use.

Officers' quarters at naval hospital, New York, N. Y., and Norfolk, Va.—Plans for houses for members of the medical staff at the naval hospitals, New York and Norfolk, for which appropriation has been made, are being prepared, and it is intended that the buildings shall be finished as speedily as practicable, so that quarters now set apart for medical officers may be converted into additional accommodations for the sick.

Naval hospital, San Juan, P. R.—The building known as the Army Corral of Puerto Tierra, San Juan, P. R., was repaired and remodeled; small separate frame buildings for kitchen, mess room, and operating room were constructed, and a detached building for a lavatory was renovated for temporary hospital purposes, as more fully described under heading of naval hospital, San Juan, at a total expense of $3,800.

Naval hospital, Canacao, P. I.—The erection of this hospital under the supervision of the Bureau of Yards and Docks is progressing slowly. The ward building and surgeon's quarters are nearly finished, but outbuildings, water supply, wharf, roadways, and many minor details remain for future construction under appropriation already made.

HOSPITALS.

Attention has been invited in the two preceding annual reports to the inadequate capacity of the naval hospitals for the needs of the Navy in its present stage of growth, and to the advisability of remodeling and renovating nearly every one of them in accordance with the requirements of modern hospital construction. With the single exception of the New York hospital, not one of them compares favorably in design or appointments with our best civil hospitals. Needed repairs and minor improvements have been made as required, but the Bureau is convinced that no amount of petty improvements of archaic buildings can satisfactorily accomplish the results to be desired. It would be economy of the public funds to promptly provide for the radical changes—even to practical reconstruction in several instances—required to modernize and make them satisfactory and creditable institutions. When fully completed in accordance with the carefully studied plans the new naval hospitals at Washington, D. C., and the Naval Academy will be model establishments, and it is hoped that means will be provided by Congress to enable the Bureau, as speedily as possible, to make other naval hospitals as good.

Naval hospital, Widows Island, Maine.—This hospital and all buildings on the island were, in accordance with an act of Congress approved on March 2, 1903, accepted by the legislature of the State of Maine, and passed from the control of the Bureau of Medicine and Surgery to that of the proper authorities of the State on January 1, 1904, and ceased to exist as a naval hospital.

Naval hospital, Portsmouth, N. H.—The erection of new shops and a large coal shed for the department of steam engineering will encroach upon the hospital property to such an extent that all the hospital outbuildings will be within the limits of the new structures, leaving the main hospital building only intact. This condition renders it necessary that a new hospital, adequate to the increased requirements of this station, be erected. The only suitable site for the erection of such a hospital on Seaveys Island has been set aside for the erection of the large naval prison, which is to have a capacity to accommodate 1,000 prisoners. The present hospital has 27 beds for the enlisted force and three rooms for officers. The building is in good condition. The steam engineering department desires the present hospital for use as an office building because of its proximity to the shops, and would thus avoid the necessity for the erection of another building for such a purpose. Therefore, it is again recommended that Congress be asked to take up the subject of establishing a new hospital at this station before it is developed to its proposed capacity. Only minor repairs, as the necessity arose, and no extensive improvements, have been made during the year.

There were 265 patients under treatment in this hospital in 1903, being an increase of 144 over the previous year. Of these, 14 were continued from 1902, 227 were discharged to duty, 2 transferred to other hospitals, 12 invalided from service, 2 deserted, 2 died, and 16 were carried over to 1904. The daily average of patients was 17.17.

Naval hospital, Chelsea, Mass.—This hospital was somewhat extensively renovated in 1901, and an annex for kitchen, bathroom, lavatories, and water-closet was built from a special appropriation for this purpose. At the same time the ventilation of the main building was improved, efficient systems of heating by steam and of electric lighting were procured, and the boiler house was repaired. The building is a massive stone structure, at present in a good state of repair and preservation, but there are many architectural deficiencies to be noted. The interior of the building is dark and gloomy; the wards have no ward dependencies, such as diet kitchens, rooms for dressings, or quiet rooms. The steam coils are badly placed for cleanliness, and only two of the wards are well adapted to their purpose. The other wards are dark and unwholesome in appearance and there is no elevator. The pesthouse is a wooden building, poorly constructed and of cheap material. The laundry, in the rear of the hospital, is built of wood and is a menace from fire. The operating room lacks efficient accessory rooms considered essential in a modern hospital. The prospective removal of the magazine from its present site will restore to the hospital grounds ample space for all purposes of future expansion, and it is believed that some of the ground in the rear of the hospital buildings might with advantage be disposed of, and the proceeds of the sale utilized in improvements to buildings and grounds, in remodeling, and in increasing the capacity of the hospital.

During the year ended June 30, 1904, repairs have been made to the hospital building, to the water supply, pipes and plumbing and water closets, to furniture and other equipment, to the ambulance and harness; the pesthouse has been reshingled, and wire screens have been provided for all windows and doors. A new floor has been laid in the mess hall, screens have been placed in the windows and doors of the director's house and gate house, and six new fire extinguishers purchased. Ten new beds, linen, pillows and new mattresses, have been provided and improvements made to the water-closets and ice chest. The grounds and outbuildings have received necessary care and attention.

There were 699 patients treated in this hospital during 1903, 59 of whom were continued from 1902. Of this number, 565 were discharged to duty, 67 invalided from the service, 8 transferred to other hospitals, 4 invalided on leave, 2 died, and 50 were carried over to 1904. The daily average of patients was 63.23.

Naval hospital, Newport, R. I.—The original building was built on plans prepared under the supervision of the Bureau of Navigation, and after completion was turned over to the Bureau of Medicine and Surgery. An extensive addition, consisting of three pavilions, provided for by a special appropriation, was completed in 1902, materially increasing the accommodations. Although of comparatively recent construction, the general hospital building is far from satisfactory. Additions have been made from time to time to meet immediate needs due to the rapid increase in the number of apprentices at the training station, but there has been little uniformity in construction or intelligent adaptation to hospital requirements. The additions are not on the same level as the main building, have no cellars, and some wards have no ventilation outlets either in the ceilings or by means of transoms. The capacity of the building is inadequate for present needs of the station, and the design is defective in details essential to proper hospital construction. The building for contagious diseases is too small and is somewhat of a fire trap. The system of heating by hot water was so inefficient that it was changed to steam heat from the boilers of the general hospital, a change economizing both labor and fuel, which proved entirely successful.

As there is no mess room in the contagious pavilion the patients are compelled to take their meals in the wards. A number of necessary repairs and improvements have been made. The roofs of the north and south wards were reshingled; all fallen plaster was replaced; the wards, operating room, bathrooms, and closets renovated; extensive alterations were made on the steam-heating apparatus of the general hospital, two new traps put in, and such changes made as prevented poundings in the mains. Considerable painting was done, all ward furniture was re-enameled, and a number of minor repairs was authorized. The electric-light system of the main hospital, having been found badly installed and being a source of danger from fire, was extensively overhauled and put in a thoroughly safe condition, and the electric call-bell equipment was repaired and made efficient. The medical officer in command has no quarters, being in consequence compelled to reside in Newport, which greatly interferes with the proper performance of his duties. It is desirable that the junior medical officers be provided with quarters outside the hospital building, and rooms now occupied by them be used for additional ward space for the sick. It is recommended that Congress be asked to make appropriation for the erection of a modern hospital for this station and for quarters for the medical staff.

During the year 1903, 1,494 cases were treated in this hospital, 89 having been continued from 1902. Of this number 1,280 were discharged to duty, 74 invalided from the service, 54 transferred to other hospitals, 1 transferred to the Government Hospital for the Insane, 3 deserted, 6 died, and 45 were carried over to 1904. The daily average of patients was 103.28, and the average number of days under treatment was 24.20.

Naval Hospital, New York, N. Y.—The medical and surgical work at this hospital during the year has been extensive, and it is gratifying to note that the equipment and appointment satisfied every demand. The need for additional beds is beginning to be felt and will be met for a time when the quarters now occupied by medical officers are available for wards for the sick. Bids for the two houses for medical officers, appropriation for which has been made, were opened after due advertisement but were largely in excess of the money available and were consequently rejected, and new plans, with change of material from brick veneer to wood, had to be prepared. This has delayed the alterations intended to be made in quarters for resident junior medical officers now inside the hospital. Building operations in connection with the new laboratory have defaced the grounds somewhat, and projected improvements in roadways have been deferred until a comprehensive scheme, after due consideration of the needs both of the hospital and laboratory, can be planned.

During the year the hospital force has kept the building and grounds in good condition. Unimproved spaces around the annex and the laboratory, and in their rear, have been graded and made into lawns. The main building, annex, smallpox hospital, and outhouses have been overhauled, painted, and repaired as needed, and all roofs have been put in a thoroughly sound condition and repainted. A severe storm on October 9, 1903, badly damaged a part of the western boundary wall and diverted the drainage from the grounds into the Wallabout Market Place, necessitating removal and rebuilding of the wall. This was completed in November. To prevent a repetition of the damage, the Bureau determined to provide permanent drains for storm water in this section of the grounds and, by catch-basins and drain to the Wallabout, to remove flood water from the stable. Severe winter weather delayed the completion of this improvement, and unforeseen difficulties increased the cost. The efficiency of the fire service was increased by removing the force pump from behind the boilers to the pump room and by providing 300 feet of hose on a cart located conveniently near the fire hydrant. By this means a good stream of water can be carried to the top story of the new ward building, hitherto without adequate protection on the upper floor.

On the roof of the smallpox annex, a galvanized-iron louvre with 12-inch star ventilator cap was fitted, and in the building all cracks and loose plaster in the walls were cut out and pointed up, ceilings painted, and wood and iron work painted and renovated. The ventilation and light in boiler and engine rooms were improved by cutting the iron roof and fitting four skylights. The electric wiring was overhauled, steel conduits were substituted for wooden molding of main electric feed wires at the gate, and the wires in the boiler house and lights for gauges and water glasses put in. The awnings for 92 windows were repaired, wire screens provided for windows and doors of new buildings, sun corridor, and other places, previously unscreened, and screens repaired or replaced by new ones for the main building, director's house, contagious-disease building, and smallpox annex. Old iron piping running to the operating room was replaced by brass pressure piping, and minor repairs to plumbing, steam-heating plant, to furniture, and to laundry apparatus were made as needed. Four new enameled water-closets were provided. A hood and iron ventilating flue, with damper and condensation bars, and fitted with a rain-proof ventilator top, was provided, which greatly improved the ventilation of the kitchen. The demand for increased heat and power for the new laboratory and officers' houses was met by adding two new 80-horsepower Bigelow boilers to the battery and repairing the boiler house to accommodate them.

During the year 1903, there were 1,525 cases under treatment in this hospital, or 371 more cases than in 1902. Of this number 100 remained from 1902, 1,027 were discharged to duty, 273 were invalided from the service, 23 were invalided on leave, 32 were transferred to other hospitals, 9 died, 4 were transferred to the Government Hospital for the Insane, and 125 were continued to 1904. The daily average of patients under treatment was 132.55.

Naval hospital, Philadelphia, Pa.—The inconvenience attached to the service at this hospital, growing out of its remoteness from the navy-yard, has been already reported. From the vessels and barracks at the navy-yard are drawn most of the patients admitted, and at each round trip the ambulance covers a distance of 14 miles. For meeting the needs of the inmates of the Naval Home, in the same inclosure, its proximity is a great advantage, and with the prospective increase in the number of beneficiaries at the Naval Home, coincident with the enlarged naval establishment, there will be greater need for ample hospital facilities for them. The present hospital will fully supply this need, and, although located in the midst of commercial enterprises and railroad interests, which create a most objectionable atmosphere of noise, smoke, and dirt, still its continuance in connection with the Naval Home is desirable.

There is, however, an undoubted need for a convenient, well-equipped, modern naval hospital on or near the reservation of the navy-yard at League Island. The steady growth in importance of this navy-yard, the number of vessels visiting the yard, and the large number of recruits detained for training, comprise a community for whose care large hospital accommodations are required. The inaccessibility of the present hospital is a serious matter, and should the plan for erecting permanent barracks for enlisted men at this station be authorized by Congress, the inconvenience will be further emphasized. It is, therefore, recommended that a desirable site on or near the naval reservation be set apart, and that Congress be asked to authorize the erection of a suitable hospital commensurate with the needs of the station, the present hospital to be retained as a part of the Naval Home. The hospital building is in good condition, but it is seriously defective in its appointments, and material improvements and remodeling are required to put it in an efficient and satisfactory condition. There is no separate building for the treatment of contagious diseases, and as during the year a large percentage of the cases treated were of an infectious nature, a great deal of inconvenience was experienced. The third floor of the hospital was used for such diseases in warm weather, but as the heating system was not extended to this floor it is unavailable in winter. Besides, access to this floor is only possible through the main corridors and lower wards, and, in consequence, diseases which should have been isolated have spread to other patients in the hospital.

Repairs have been made to the outside of the building, and to plumbing and steam-heating plant; and drainage from exhaust pipe of engine house, stable, and greenhouse, previously discharged on the surface, has been led underground and connected with the sewer system, thereby effecting a material improvement.

During the year 1903, there were 945 patients under treatment, 59 continued from 1902, with a daily average of 75.14. Of these patients 668 were discharged to duty, 8 transferred to other hospitals, 180 invalided from the service, 3 transferred to the Government Hospital for the Insane, 6 invalided on leave, 4 deserted, 17 died, and 59 carried over to 1904. Ninety-four beneficiaries were treated, of whom 14 died, 64 were discharged to the Naval Home or to their own homes, 4 transferred to the Government Hospital for the Insane, and 8 carried over to 1904. The daily average of patients was 75.14.

Naval hospital, Washington, D. C.—To meet the demands for an increased number of beds in this hospital, the attic floor was outfitted by extending the water and heating systems, making plumbing connections, and installing appropriate hospital furniture. In consequence of lack of accommodations it has been necessary to send cases of infectious disease to a civil hospital for treatment. With the completion of the new hospital now being erected on the grounds of the Naval Museum of Hygiene and Medical School, this old hospital will probably be placed out of commission, and therefore only minor repairs to keep the building in good condition have been authorized. A new range and water boiler were installed, and a new, improved type of ambulance was secured to replace the old ambulance which was sent, after repairs, for use at the naval hospital, Pensacola, Fla.

During the year there were 344 patients under treatment, 26 of whom were continued from 1902. Of these, 283 were discharged to duty, 4 transferred to other hospitals, 25 invalided from the service, 3 transferred to the Government Hospital for the Insane, 1 deserted, 5 died, and 23 were carried over to 1904. The daily average of sick was 25.14, and the daily average of time under treatment was 26.32.

Naval hospital, Norfolk, Va.—Measured by the importance and character of the medical and surgical work performed at this hospital, it is second to none under the cognizance of the Bureau. The site is most admirable, in convenient distance from the navy-yard, and easily accessible by land or water. The hospital was built in 1830, and after seventy-three years of usage is old and worn. It is architecturally imposing in appearance—a massive graystone structure in an extensive park, with background of pine forest. It is, however, on close examination, found to present many evidences of deterioration from unequal settling, effects of weather, the warping of interior woodwork, and general structural decay. In general plan and design it is defective for hospital purposes, and in detail it is hopelessly lacking in the essentials of convenient and satisfactory administration. The importance of the naval station here requires a capacious, well-appointed naval hospital. It is impossible to convert the present building into such without radical and complete alteration and remodeling, amounting practically to reconstruction. The expense of keeping in repair so old a building is money wasted and no permanent improvement is secured. The capacity of the hospital is inadequate, and enlargement is necessary. The Bureau has been carefully studying plans to enlarge, renovate, and remodel this hospital, and earnestly recommends that an appropriation be requested, to be available with the least necessary delay, to comprehensively carry them into effect.

During the year considerable repair work has been done. The interior of the building has been thoroughly repaired. Awnings and screens have been supplied; the gutters and rain downtakes were renewed; new plumbing and fittings have been installed in water closets; and new beds for wards provided. The laundry was equipped with a new Fox engine; the boiler house, boilers, and pipes have received needed attention, and a new duplex Worthington pump secured. The operating room has been provided with a circulating-water-heating apparatus, automatic washstand, Nernst electric lights, and new instruments. The outbuildings and fences have been cared for, and the cemetery walls painted and headstones aligned. The medical director's house has been placed in good condition. The voltage of the electric supply has, by new transformers, been raised from 55 to 110 volts throughout. The grounds have received much attention, brick walks have been laid, roadways repaired, dead pines cut down, and new drain pipes placed. The bridge leading to Portsmouth, for which Congress appropriated $5,000, has been constructed. The work of cutting away the hospital point to widen the harbor of Norfolk and deepen the channel is now being done by contractors. All damage to sea wall, wharf, boathouse, and grounds incident to this improvement is to be made good under the terms of the contract.

During 1903 there were 1,344 patients under treatment in this hospital, of which 93 remained from the previous year. Of these, 1,099 were discharged to duty, 15 to other hospitals, 103 invalided from the service, 8 invalided to sick leave, 9 transferred to the Government Hospital for the Insane, 4 deserted, 24 died, and 79 continued to 1904. The daily average of patients was 132.62

Naval hospital, *Port Royal*, *S. C.*—Keeping in view the purpose of the Department to abandon this yard, the Bureau has considered it inexpedient to authorize any expenditure on the buildings of this hospital. If intended for continued use, extensive repairs to all of them would be necessary, as the timbers and frames are beginning to decay. It serves fairly well for the needs of the small force maintained at the station. Impressed by the facilities ready at hand for the administration and care of a camp at this station, and the climatic advantages afforded for open-air treatment, the Bureau recommended that two vacant buildings, recently constructed for the department of steam engineering, be remodeled and fitted up for temporary use in connection with tents for tuberculous patients. The lack of a proper water supply and sewerage system with other drawbacks at Pensacola, where an experimental camp for the victims of this disease had met with encouraging success despite these deficiencies, convinced the Bureau that at Port Royal might be found a satisfactory solution of the problem of how best to deal with these unfortunates of the Navy. It is regretted that it was deemed inexpedient to authorize the expenditure to carry out the plan. The presence of the *Buffalo* with an epidemic of diphtheria in the early part of 1903, is responsible for the large number of cases returned for the year. There were 178 patients under treatment, of whom one was continued from 1902, 172 were discharged to duty, 3 invalided from the service, and 3 carried over to 1904.

Naval hospital, *Pensacola*, *Fla.*—The rendezvous of the ships comprising the North Atlantic, European, and South Atlantic squadrons for target practice, early in the year, in the vicinity of Pensacola Bay, called marked attention to the inadequate capacity of this hospital to meet the needs of the service. The building was speedily overcrowded, and it became necessary, at considerable expense, to transfer a number of sick to a northern hospital and to secure accommodations for others in a private hospital. It was further found necessary to retain the sick who should have had hospital care on board ship, under trying circumstances incident to prolonged gun practice. The condition of this hospital is most unsatisfactory. Without a sewerage system, with an insufficient water supply, and lacking bathing facilities, the sick are subjected to unavoidable discomfort, and its administration is most inconvenient. The two frame buildings are in good repair and have been neatly painted. Two brick outbuildings have been thoroughly repaired, one for a dormitory for hospital attendants, the other for a kitchen and storerooms, thereby increasing the number of beds for the sick. A new range has been installed, an ambulance provided, veranda awnings fitted, enameled iron beds with other needed ward furniture have been secured, and various minor repairs and improvements made as required.

The question of a water supply is a most serious one, and has not been satisfactorily settled. The location of a camp for the open-air treatment of tuberculous patients was established on the grounds of the hospital in the latter part of 1903, and the benefits so far resulting are encouraging. Under present crude facilities the number to be cared for here must be very small. There is urgent need here for a modern well-appointed hospital of about 60 beds capacity, with sewerage system and ample water supply, and the Bureau urgently recommends that Congress be asked for a sum sufficient to supply this need without delay.

During the year 1903 there were 222 patients under treatment in this hospital, of whom 6 were continued from 1902, 174 were discharged to duty, 20 transferred to other hospitals, 6 invalided from the service, 1 died, and 17 were carried over to 1904. The daily average of patients was 18.82.

Naval hospital, *San Juan*, *P. R.*—Assembly of the vessels of the various squadrons in the waters adjacent to Porto Rico for drills and maneuvers during the winter made it necessary, in the absence of a hospital ship to cooperate with the fleet, to provide accommodations for the sick greater than the capacity of the sick quarters at the naval station, San Juan. The sick quarters of this station are located in a building of a single story, and are unduly crowded with 21 beds—no more than sufficient for ordinary requirements of the station. In the preceeding year, through the courtesy of the War Department, the facilities of the United States army hospitals were availed of for the overflow of patients from the sick quarters, and, though this privilege was again extended, it was deemed advisable to utilize the former army corral, which came under the control of the Navy Department as a part of the naval reservation, for temporary hospital purposes.

Repairs were begun in November, 1903; three small one-story frame buildings were constructed, and a detached building was renovated for use as a mess hall, kitchen, lavatory, and operating room. The hospital was ready for the reception of patients by January 1, 1904, and its wards have since been kept well filled, with a daily average of 40 patients. The site of the hospital is on an elevated plot of land, 250 feet deep by 400 feet long, at Puerto Tierra, near the sea, and removed from the noise and dirt of city surroundings. It is easily accessible by tram car. The hospital, which is intended for temporary occupation, is a one-story building, remodeled to improve its facilities, and gives in its two wards accommodation for 50 enlisted men, with four rooms for sick officers. Lacking many essential features of a modern hospital, the building is, however, provided with a complete new outfit, with plumbing and fixtures of the most approved sanitary type, and is rendering most efficient service. The erection of a stable is in contemplation, to shelter the ambulance and to provide accommodation for horses, feed, etc. During the prevalence of an epidemic of diphtheria among the crew of the *Monongahela*, tents were set up in the hospital grounds, the capacity of the hospital being inadequate to meet this exceptional demand.

Naval hospital, Mare Island, Cal.—The number of patients treated during the year 1903 shows an increase of 53 per cent over 1902. This is the most important naval hospital on the west coast, and draws its sick from the naval station at Mare Island, the naval-training station at San Francisco, and from the Pacific and Asiatic stations. Its capacity has already proven inadequate, though 24 beds have been gained by conversion of quarters formerly assigned to resident medical officers. Extensive improvements and repairs have been made during the fiscal year, of which the most important are the completion of the detached contagious hospital, the completion of two houses for members of the medical staff, the laying of three separate lines of sewers from the medical director's house, connecting with a new 6-inch cast-iron main emptying into the channel and securing excellent drainage, and the connection of the navy yard water system with that of the hospital by means of a 6-inch iron water pipe, insuring an abundant supply of water. The plastering of the main building, damaged by shrinkage of the wood and lathing and by frequent slight earthquake shocks, had become extensively cracked and in many places had fallen off. This has been thoroughly renewed and repaired. The walls of the second and third floors, the wards and patients' dining room on the first floor, and the contagious hospital throughout, have been painted. Two large comfortable cells, with a washbowl and closet have been built in one of the two large compartments in the basement and are used as brigs.

A new pump was put in the fireroom, the water heater in the boiler room thoroughly repaired, insuring an ample supply of hot water for the main and outbuildings, and new traps installed in laundry and boiler room. The hospital grounds have received needed attention, and flowers, plants, and trees have been planted. The fences and roads have been repaired, 1,600 feet of new fence have been built, and the cemetery has been kept in good condition. A road and cinder path to the contagious hospital have been made, a concrete sidewalk laid at side of the building, and the grounds graded and drained. Fire extinguishers have been provided for the new buildings; minor repairs to furniture and buildings and additions to the equipment of the bacteriological and operating rooms have been made. California oil on the roadways has been used with most satisfactory results. The officers' quarters are completed and have been occupied. The contagious hospital contains four rooms for officers and a ward with 12 beds for enlisted men, and is furnished and in use. Additional accommodations for contagious cases have made it necessary at times to erect tents on the hospital reservation. Every bed in the main building has been frequently occupied, and the necessity for increase of bed capacity will soon be urgently pressing.

During 1903, 954 patients were treated in this hospital, as against 622 in the year 1902. Of these, 111 were continued from 1902, 493 discharged to duty, 32 transferred to other naval hospitals, 241 invalided from the service, 20 invalided on leave, 11 to the Government Hospital for the Insane, 20 deserted, 16 died, and 121 were carried over to 1904.

Naval hospital, Puget Sound, Wash.—This small hospital is the building planned by the Bureau of Yards and Docks as a station sick quarters, modified to better adapt it to hospital requirements, and it furnishes comfortable accommodations for 14 patients. During the presence of several vessels undergoing repairs at the yard, its capacity was overtaxed, and, though it meets ordinary needs, with the aid of hospital tents for infectious cases, it is realized that a larger establishment will soon be required. The increasing importance of this admirably located Northwest navy-yard leads the Bureau to renew its recommendation that an appropriate site, with sufficient ground for a much larger hospital with necessary dependencies, be selected as soon as practicable. The old dispensary building, as directed by the Department, has been turned over to the Bureau of Yards and Docks.

During the part of the year from May 1, 1903, when the hospital was first opened, there were 83 patients under treatment, of whom 59 were discharged to duty, 3 transferred to other hospitals, 9 invalided from service, 4 died, and 8 were carried over to 1904.

Naval hospital, Sitka, Alaska.—Early in August of 1903 the condition of decay of the old storehouse, which had been occupied as a naval hospital, and of the piles on which it rested, became so pronounced that its abandonment became imperatively necessary, and a small frame house, which was available, was rented for temporary use. The need for a small, well-equipped hospital at this frontier station, unless it is to be entirely abandoned, has been previously called to the Department's attention, and the Bureau renews its recommendation that Congress be asked for a sufficient appropriation to build a suitable hospital at this station. The medical officer at this hospital, apart from his duties with the marine guard, is frequently called upon for important emergency surgical work by civilians otherwise unprovided for, and the dictates of humanity require that the service be performed. The epidemic prevalence of smallpox in the vicinity of Sitka in the early summer has been reported, but no case has occurred in the marine force stationed there.

Naval hospital, Yokohama, Japan.—The withdrawal of our vessels from waters about Japan, in consequence of disturbed conditions in the Far East, has served to temporarily diminish the activity of this hospital, but its usefulness and importance have continued to be manifest. Somewhat extensive repairs have been necessary during the year. The foundations of the front of the annex were found to have settled, causing extensive damage to plastering. The electric wiring in both this building and the junior officers' quarters was discovered to be unsafe, in consequence of defective installation and change of voltage in the city electric supply. These defects have been corrected. An additional boiler was placed in the basement for heating purposes, the old boiler being in need of extensive overhauling and having been found of insufficient capacity. New articles of mess equipage and hospital furniture have been supplied as needed, and a new range for the kitchen has been ordered from the United States. The lack of a detached building for contagious diseases and of a mortuary room has been felt. The grounds have been kept in a neat and attractive condition.

The necessity for the acquisition of additional space for the site of the new ward of the Yokohama hospital, for the erection of which an appropriation has already been made, and the availability of a small lot adjacent to the present grounds owned by this Government at Yokohama, Japan, has been represented by the Department and request made for favorable action by Congress looking to its purchase. The usefulness and value to the Navy of this hospital, favorably located in a salubrious and invigorating climate, supplying a much-needed sanitarium for men sick and debilitated by exposure in the Philippines and in Chinese waters, can hardly be overestimated. The site is too contracted to admit of necessary expansion, and the additional ground desired is needed to use to the best advantage funds already set apart. The Japanese authorities have sanctioned the alienation of this lot, and an estimate is again submitted and authority of Congress is requested to effect the purchase.

During the year 1903 there were 264 patients treated at this hospital. Of these, 35 were continued from 1902, 174 were discharged to duty, 40 transferred to other naval hospitals, 30 discharged from the service, 3 invalided on leave, 1 died, and 16 were carried over to 1904. The daily average of patients was 27.32.

Naval hospital, Cavite, P. I.—The unsatisfactory character of this hospital has been reported each year of the five since it was hastily improvised. It is located in the midst of noisy machine and boiler shops, and lacks nearly every essential of a proper hospital structure. The building has steadily deteriorated and is in bad condition. Despite all attempts at repair, the roof still continues to leak at every rain storm. The wooden framework contains much rotten wood, but in view of its prospective abandonment only the most urgently needed repairs have been made. The delay in the construction of the hospital at Canacao, caused by nondelivery of materials and the methods of native labor, has been most exasperating, but it is hoped that by the end of another year it will be in condition for occupation, and this old building can be permanently vacated. It was feared that cholera and bubonic plague, which had been epidemic in the islands during the previous year, would reappear, but there were very few cases of cholera and none of plague at Cavite in 1903. Dengue prevailed extensively, and smallpox was epidemic during the earlier part of the year in the community, but no one in the naval service contracted the latter disease. The pesthouse at Canacao was not in use for any infection during the year. The Bureau has learned from a report of inspection of the Cavite hospital, made by the commander of the Philippine Squadron, that the entire building has been kept in a most satisfactory condition of cleanliness, and that the service rendered has been most efficient despite inappropriate surroundings. During the year 305 patients were treated in this hospital, of whom 206 were discharged to duty, 57 transferred to the naval hospitals at Yokohama and Mare Island, 4 invalided from the service, 2 died, and 36 were carried over to 1904. The daily average of patients was 37.72.

Naval hospital, Canacao, P. I.—The increasing dissatisfaction over the inadequate and inappropriate quarters improvised under urgent necessity as a naval hospital at Cavite, P. I., in 1899 has caused some impatience at the annoying delays experienced in the construction of the naval hospital at Canacao. The exhaustion of the too limited appropriation first made threatened a complete suspension of this work, but the additional appropriation of $70,000 by the last Congress has enabled the Bureau to have it continued, and from progress already made it is hoped that the hospital will, without much further delay, be ready to receive patients. Although the development of the naval station at Subig Bay will minimize activities and interests at Cavite, it is unlikely that the need for the new hospital establishment will cease to be felt until its usefulness and importance have been fully demonstrated, apart from the naval hospital which will be required for the new station at the principal naval base in the Philippines.

Hospital for United States Naval Academy.—Plans for a hospital at the Naval Academy have been approved after most careful study of the needs of the station, and the Bureau has, on its part, made every endeavor to expedite the consideration of all preliminaries to construction of the buildings. These plans, after advertisement for proposals, proved to involve a cost in excess of the amount considered available as an allotment from the general appropriation for academy buildings, and have again been carefully revised with a view to bringing the cost within an amount approved by the Department. Decision upon the vexed question of site has been reached, and it is hoped that further delay in the erection of the hospital will be avoided. The large increase in the number of midshipmen, which has latterly been doubled, the number of enlisted men of the Navy and Marine Corps on duty at the station, together with the number on board visiting ships, make it most desirable that a hospital should be built at the earliest practicable time. Enlisted men are at present without hospital accommodations unless transferred to the naval hospital at Washington, D. C., which is an inconvenient and unsatisfactory method of disposing of the sick. A temporary frame annex to the sick quarters has been erected during the year, and has relieved embarrassment in some measure, but it has happened that the sick among the midshipmen who have been proper subjects for hospital care have been retained for treatment in their own quarters.

Advertisement for the construction of this hospital was made in May, and only two bidders responded. The bids being considered excessive, the Department directed re-advertisement after revision of plans and specifications. The proposed hospital has been planned with a view to proper accommodations of two classes of patients, enlisted men, and midshipmen and officers, under one central administration. The necessity for such dual arrangement has required somewhat more elaborate plans than would otherwise have been necessary, and in order to secure a building harmonizing in architectural features with other new structures at the academy some increase of cost is inevitable. It is deemed highly important, and the Bureau strongly recommends, that an adequate and complete establishment be provided, and that the construction of the hospital should be pushed to completion at the earliest possible date. The facilities for caring for the sick of this community, numbering, approximately, 1,400, are inadequate and unsatisfactory. Fortunately, during the past year health conditions at the academy have been satisfactory, and no extensive or serious type of epidemic disease has occurred.

OPERATIVE SURGERY IN NAVAL HOSPITALS.

There has been an increase in the number of operations performed at the naval hospitals during the year ending June 30, 1904, the total being 753 as against 662 for the previous fiscal year. The hospital at New York furnished a total of 209 important operations performed, followed by Norfolk with 141 and Mare Island with 118, while Washington with 61 made an excellent proportional showing. The following is a summary of the character and number of operations performed, viz:

Abcess	70
Adenectomy	131
Amputations	15
Prolapse of anus	5
Appendectomy	38
Aspirations	3
Carbuncles	3
Castration	1
Cellulitis	1
Circumcisions	87
Empyema	8
Enucleation (eye)	1
Excisions	1
Fistula (fæcal)	2
Fistula in ano	19
Fracture (ununited)	19
Hæmorrhoids	59
Hæmatoma	1
Herniotomy (inguinal)	80
Herniotomy (ventral)	2
Hydrocele	7
Laparotomy	1
Luxation (old)	3
Necrosis (bone)	14
Periostitis	2
Phimosis	10
Plastic operations	12
Pterygium	9
Resections	10
Thoracocentesis	1
Thoracotomy	1
Tonsillotomy	30
Trephining (mastoid)	2
Tumors and cysts	25
Unguis involutus	3
Urethrotomy, external	7
Urethrotomy, internal	9
Varicocele	43
Varicose veins	10
Gunshot wounds	2
Total	753

RECEIVING SHIPS.

Increased and better accommodations for recruits were provided by commissioning the more commodious *Hancock* as receiving ship in place of the *Columbia*, taken from the navy-yard, New York, for active service. The *Lancaster* was drawn from the cruising class and converted into a receiving ship, and has been utilized in connection with a camp and temporary barracks for recruits at the navy-yard, League Island, Pa. Inadequate provision for ventilation below the gun deck will materially decrease the number of men who can be safely billeted on the berth and orlop decks, and an efficient system of artificial ventilation should be installed before the capacity of this vessel is fully taxed. The *Franklin* and *Richmond* are used in connection with temporary barracks erected on St. Helena at the navy-yard, Norfolk, Va., and at the Puget Sound Navy-Yard the *Philadelphia* has replaced the old *Nipsic*. The *Wabash*, *Constellation*, *Santee*, *Independence*, and *Pensacola* are still in service, and have been kept in as good sanitary condition as is possible in view of their age, wooden structure, and long use as habitations for recruits. Used in connection with proper barrack buildings, these vessels will doubtless prove useful for years to come, but their capacity is too small for present requirements, and their sanitation grows increasingly more difficult.

During the year there has been less overcrowding of recruits on the receiving ships than in the previous year, and the resultant improvement in general health conditions has justified the Bureau in its representations of the harmfulness and danger from undue crowding of the enlisted men and its recommendations to prevent the creation of insanitary conditions.

INFECTIOUS DISEASES AT RECEIVING AND TRAINING STATIONS.

The various and widely disseminated infections which threatened the service and were the occasion of much concern to the Bureau during the preceding year were largely suppressed and eradicated by the employment of vigorous and systematic preventive measures suggested in the review of such diseases contained in the last annual report. At the beginning of the present fiscal year there remained few cases of infectious disease—the smouldering embers of several epidemics which had occurred among the enlisted personnel. It was predicted, however, in view of the methods employed to secure men for the service, the activity of recruitment, together with the lack of preparedness to properly house them at the various naval stations, that there would be experienced a repetition of former troubles. The medical officers at the various naval stations have exercised unusual vigilance in their efforts to early detect evidence of any contagion and to promptly institute measures to prevent its spread. To these unflagging endeavors is due the comparative immunity from epidemic extension of infectious disease.

Facilities for the effective disinfection and sterilization of personal effects and bedding and for fumigation of living quarters have been provided by the Bureau at the receiving and training stations at Newport, R. I., at New York, N. Y., at Norfolk, Va., at Mare Island, Cal., and at the training station at San Francisco, Cal. Lack of a suitable building had prevented the Bureau from installing a proper sterilizing outfit at the navy-yards, League Island and Puget Sound, but this deficiency will be promptly supplied as soon as the building is provided for the outfit. With the installation and intelligent use of a sterilizing apparatus the danger of conveying infection to the vessels of the fleet through transfer of recruits will be much diminished.

Training station, Newport, R. I.—Throughout the year cases of diphtheria have recurred, but never as an extensive epidemic. The type of the disease has been mild, and no deaths have resulted from it. Measles, German measles, mumps, and scarlet fever have occurred among the apprentices in sporadic form. Seven hundred and ninety cases of infectious diseases were treated during the year. Pneumonia and diseases of the respiratory organs were very prevalent, and were traceable to insanitary appointments of the dormitories and to rigors of the climate at this station.

U. S. receiving ships Franklin and Richmond.—During the year ended June 30, 1904, these ships have been singularly free from infectious diseases with the exception of measles, which prevailed in epidemic form, 100 cases occurring during the early spring. Because of this epidemic, transfers of enlisted men to and from the station were suspended for several weeks. A few cases of mumps developed in recruits. The erection of temporary barracks on St. Helena prevented undue crowding on board, and the general condition of health on these vessels and at the navy-yard, Norfolk, has been good.

U. S. receiving ship Lancaster.—The large majority of recruits attached to this vessel were domiciled in three temporary wooden barracks erected on League Island. In view of last year's experience at this yard the Bureau was apprehensive of trouble, but health conditions were satisfactory, only a few sporadic cases of mumps and measles occurring prior to early spring. In the spring when transfers of recruits to the *Franklin* were suspended on account of the epidemic of measles prevailing at the navy-yard, Norfolk, Va., the number of recruits received at this station speedily increased.

On April 17 a case of cerebro-spinal meningitis was sent to the naval hospital from No. 3 barracks; on the 23d another; on the 25th two more, and on the 26th one. The Bureau at the first appearance of this disease recommended that the men be placed in tents, and this was effected as speedily as practicable. A board to investigate the sanitary condition of the yard was promptly appointed, and report was made showing that there had been overcrowding, and that from the most superficial inspection the barracks had been constructed without regard to sanitary requirements. It appeared that, although intended for the accommodation of about 750 men, these barracks could safely house no more than 250, and that overcrowding and lack of proper ventilation in the sleeping quarters had largely contributed to the outbreak. At this time cases of mumps and measles multiplied. The total number of cases of cerebro-spinal meningitis sent to hospital was 6, and of these 3 died. The prompt abandonment and thorough and repeated fumigation of the barracks checked the spread of this most distressing malady, and the lesson is again taught, at the expense of 3 lives lost and 3 more probably found disqualified for the service, that violation of the laws of hygiene brings its penalty.

U. S. receiving ship Hancock.—During the time this vessel has been used as a receiving ship cases of measles and mumps and a case of smallpox have appeared among the men, but in an interrupted way, and no epidemic has prevailed. Unusual vigilance has been exercised and repeated disinfection has been made to check infections, and the sanitary condition has been satisfactory. Early in June a single case of cerebro-spinal meningitis developed, but the disease did not spread.

United States naval training station, San Francisco, Cal.—The epidemic of diphtheria noted in last year's report was suppressed in the early autumn, only one case occurring in the fourth quarter of 1903, since which time there have been none. Measles and mumps have prevailed in mild epidemic form. Catarrhal diseases of the respiratory organs have been common, and pneumonia furnished 32 cases.

U. S. training ship Mohican and U. S. training ship Adams.—The *Mohican* reported cases of measles, rubella, and of mumps, the infection being received from drafts of apprentices from the training station at San Francisco, but the disease was speedily suppressed. On February 16, 1904, an epidemic of diphtheria started, and three cases were promptly recognized and sent to the marine hospital. Other cases following, the facilities of the quarantine station of the Public Health and Marine-Hospital Service, San Diego, Cal., were utilized, all the sick being transferred to hospital, and the ship's company, with bags and hammocks, established in barracks ashore. Here thorough disinfection was secured for all hands and the ship was fumigated with sulphur, and four days after was cleaned throughout. Daily inspection of all throats was made and diagnosis was confirmed by cultures. After eight days the crew returned to the ship. In all, eleven cases occurred. Antitoxin was used, and every case recovered.

U. S. receiving ship Independence.—The health conditions on this vessel have been satisfactory. Cases of mumps and measles have been reported, but no epidemic has occurred during the year.

Naval station, Puget Sound, Wash.—Cases of mumps and measles were reported at this station, but no epidemic developed. While mumps and measles and a few isolated cases of smallpox have occurred on several of the cruising ships, no general infection of any one of them has obtained.

BARRACKS FOR RECRUITS.

The question of properly housing the large number of recruits retained at receiving stations has been for some time of pressing importance. Congress has granted a large increase in the enlisted personnel and this increase is in advance of proper and satisfactory provision for the shelter and care of the men. In consequence raw recruits have been herded in unsuitable accommodations at the cost of much discomfort and hardship, under insanitary and unwholesome conditions. The receiving ships were inadequate in capacity and, under pressure of necessity, inadequate and ill-considered temporary barracks have been hurriedly constructed, notably at the navy-yards, League Island, Pa., and Norfolk, Va. Conditions favorable to the spread of various infections and to the occurrence of diseases of the respiratory organs, pneumonia, grippe, etc., have been created, and such diseases have been prevalent at the various recruiting and training stations.

It is believed that the added expense to the pension list by invalidism due to these conditions has not been insignificant. The construction of suitable, ample, and sanitary barracks has been already too long delayed, and the Bureau urgently recommends that emphasis be placed on the necessity for prompt relief to meet the difficulty of the present situation. Recourse to tents as a temporary expedient has been beneficial in certain emergencies, but it is undesirable, particularly in severe weather of our winters, to subject recruits to the inconveniences, hardships, and dangers of camp life. The erection of barracks, so long contemplated and repeatedly recommended by this Bureau and the Bureau of Navigation, would seem to be the best measure possible to solve the problem. It would be a grievous mistake, should barracks for recruits be built, to fail to have them planned in accordance with the most advanced sanitary ideas, insuring ample floor and cubic air space, abundance of sunlight, efficient ventilation, heating and lighting, with lavatory facilities, and plumbing and sewerage of the best type. The Bureau again recommends that each receiving station be provided with completely equipped barrack buildings of a sufficient capacity to shelter all recruits received at that station during a period of one month. This reception barrack would furnish a means of control over infections not otherwise practicable. It should be borne in mind that sanitary barracks, with every modern convenience, can promptly be made insanitary by overcrowding. The number of men housed in any barrack should not exceed a fixed maximum based on well-established laws of hygiene.

MARINE BARRACKS.

Reports from medical officers have given information of a degree of overcrowding under insanitary surroundings at some of the barracks occupied by the marines. The growth of the Marine Corps has been rapid, and the capacity of barracks has been overtaxed. Some of the older buildings, notably those at the Washington Marine Barracks and at the Navy Yard, Washington, D. C., are inadequate, and were manifestly designed without regard to the hygenic needs of structures housing a large body of men. Concern has been felt at this state of affairs by medical officers charged with their sanitary supervision, and warnings and recommendations have been expressed, but the danger apprehended still threatens. Sanitary barracks are as necessary for the marines as for the enlisted men of the Navy and the Bureau recommends that the need of renovation and reconstruction of the insanitary barracks be given due consideration.

THE MARINE BRIGADE ON THE ISTHMUS OF PANAMA.

The secession of the State of Panama from the United States of Colombia and our treaty obligations to maintain free transit across the Isthmus, as well as the protection of the Panama Canal then in process of transfer to the United States, necessitated the assembling on the Isthmus of a force of United States marines, with medical officers and hospital corps men, aggregating 1,360 officers and men. The first battalion of 393 officers and men arrived at Colon on November 5, 1903. During the five months previous this force had been in camp on the island of Culebra, West Indies, and had there suffered more or less from malarial fevers, as high as 14 per cent having been on the sick list from this cause at one time. Arriving on the Isthmus on November 8, one company immediately encamped at Empire station, 35 miles from Colon, on the line of the Panama Railroad, and on the 15th the remainder of the force was sent to the same point. Another battalion of 324 officers and men arrived on the *Prairie* and encamped at Bas Obispo on December 28, 1903.

On December 18, 1903, the Bureau was informed that a medical outfit, complete in all particulars for a field force of 1,200 men, would be required, and immediately took steps to provide the necessary instruments and supplies, consisting of medicines, hospital stores, appliances, and filters. Tentage, cots, mosquito nettings, etc., were provided by the quartermaster of the United States Marine Corps in time to be forwarded with the expeditionary force sailing on December 28 from the navy-yard, League Island, Pa., on the U. S. S. *Dixie*. This force of 635 officers and men, under the personal command of Brigadier-General Elliott, Commandant, U. S. Marine Corps, included four medical officers and 14 hospital corps men. Arriving at Colon on January 3, 1904, this force was promptly encamped at Empire and Bas Obispo, which points were considered the best camp sites on the line of the railroad. More sanitary locations remote from the villages of infected natives were deemed impracticable because of the absence of roads, rendering access and supply most difficult. Reports of medical officers serving with this brigade, giving detailed sanitary information, will be found in that part of this report devoted to special reports. Mosquitoes of the *Culex* and *Anopheles* species, gnats, and other insects were plentiful at Colon, Panama, and the native villages, though at the camps they were not numerous enough to prove very annoying. Only by continued and frequent night inspections were the men trained to make a fairly effectual use of mosquito nets.

During the period covered by the various reports the percentage of sick was 4.05, of which malaria furnished 3.10. The daily average of patients was 55.70, of which malaria gave 41.40. Of 316 admissions to the sick list, 294 were for febris remittens, 17 for febris intermittens, and 5 for febris ephemera. The average number of days on the sick list was six. No death in the brigade occurred during the time covered by the reports, nor has one occurred subsequently. Blood examinations of the sick were made from the time of arrival, and after January 18, 1904, every case was so examined. In a series of 106 cases 5 cases failed to show the presence of the malarial plasmodium after several examinations, and 12, negative at first, were positive later. The parasite found was that of the tertian variety of malarial fever. In only 2 cases was a decided trace of albumen found. No case of yellow fever was noted. By April 18, the withdrawal of officers and men reduced the strength of the force to 450 officers and men, of whom 150 had had previous malarial attacks. There were indications that the force was becoming acclimatized. A blood examination preceded the administration of quinine in every febrile case. The medical officers accompanying the expedition worked with zeal and enthusiasm, and credit for the sanitary success of the expedition was due in large measure to their efficiency. General Elliott, U. S. Marine Corps, at all times showed a keen interest in sanitary matters, and this interest made it possible for the efforts of the medical officers to insure the physical welfare of the command to be crowned with gratifying success.

The battalion stationed on the Isthmus has suffered from a mild type of dengue, but has continued in good physical condition.

ADVISORY FUNCTIONS OF THE BUREAU.

The wisdom of the Department in directing, in an order dated April 17, 1902, that the Bureau of Medicine and Surgery be consulted in an advisory capacity on matters pertaining to the care of the sick and the maintenance of health in the preparation of plans of new ships and in extensive alterations of old has been exemplified by good results. The Bureau desires to express its appreciation of the continued courtesy of the Bureau of Construction and Repair in affording opportunities for the accomplishment of the purpose intended, and there can be no question but that improvements in the conditions on board ship of far-reaching importance to the personnel have resulted. By standardizing equipment in hospital spaces, after consultation between the Bureaus, work has been simplified and greater efficiency secured. The Bureau realizes that there are other and important features of ship construction involving questions of hygiene upon which the advice of the sanitary officers of the service, who possess practical experience and theoretical training in ship sanitation, might, with advantage to the personnel, be secured.

Radical defects in some of our completed vessels, seriously affecting their healthfulness, have been noted in the past too late to be corrected without expenditure of large sums of money and loss of time from active duty. In all matters pertaining to ventilation, sewerage, allotment of berthing space, and lavatories, which are vitally important to the living combative element, the medical officer is qualified to advise, and the most appropriate time to secure benefit from such advice is before work has progressed so far as to make it impracticable to allow changes. Furthermore, it is deemed important that in the planning and equipment of barrack buildings, whether temporary or permanent, for the accommodation of enlisted men of the Navy or Marine Corps, the Bureau should be called upon for an expression of opinion upon sanitary questions involved, and for recommendation with a view to securing the most hygienic habitations possible. The Bureau has recommended to the Department that an order to secure this end be issued. The necessity for such action has been illustrated by the findings of a board appointed in May last to investigate the sanitary condition of the navy-yard, League Island, Pa. An outbreak of cerebro-spinal meningitis among the recruits quartered in a temporary barracks there caused much concern. It was found that in barracks unprovided with means of artificial ventilation and with a very insufficient window space recruits had been herded during the inclement weather of the early spring, to the extent of diminishing the average cubic air space per man to 161 cubic feet. After a few weeks of occupation, in an overcrowded condition, it became necessary to temporarily abandon them and to transfer all recruits to camp.

A more extensive epidemic of the same nature had occurred on the *Minneapolis*, the receiving ship at this yard in the previous year, under similar conditions of insufficient ventilation and overcrowding, which gave occasion to the Bureau, in its annual report for 1903, to call marked attention to the dangers threatened by such insanitary overcrowding. The number of occupants of each of the temporary barracks had been approximately 230, when the capacity of each building allowed less than 600 cubic feet of air space per man for 80. Such a condition could not have existed if those intrusted with naval sanitation had been consulted in the preparation of the plans of the barracks.

WOMEN NURSES.

The desirability of having trained women nurses as a part of the medical department of the United States Navy, eligible for service at naval hospitals, on board ambulance and hospital ships, and for such special duty as the Surgeon-General of the Navy may deem necessary, has been previously presented, and recommendation for their appointment has had the Department's approval. Mature consideration of the best interests of the naval service has convinced the Bureau that there is need for them.

The experience of the Army medical establishment has removed any doubt of their adaptability to service institutions under military control, and the superority of the woman over the man trained nurse for much of the duty required in the care of sick and injured men has been conclusively demonstrated. For reasons of discipline it is deemed best that there should be one superintendent of nurses, and, for reasons of economy, as many chief nurses, nurses, and reserve nurses as may be needed. Under conditions of peace the number of such trained nurses would be small and in time of war expansion to meet extraordinary needs without confusion and delay would be practicable. In addition to supplying better and more efficient nursing to the sick, valuable assistance could be rendered by the woman trained nurse in teaching the men of the Hospital Corps of the Navy their special duties, and in the event of war the men could be, in large part, released from hospital duty and assigned to our vessels of war. The Bureau renews its recommendation that Congress be asked for legislation authorizing the employment of female nurses in the Navy.

DENTISTS FOR THE NAVY.

The recommendations made in two preceding reports for the enactment of legislation authorizing the employment, under the control of the Bureau of Medicine and Surgery, of skilled dentists for service in the Navy, is renewed. In the opinion of the Bureau the number to be allowed should be in the proportion of 1 dental surgeon for every 1,000 of the strength of the Navy and Marine Corps, not exceeding 30 in all, and authority for their appointment under the terms and conditions applicable to acting assistant surgeons in the Navy, after satisfactory examination to be prescribed by the Surgeon-General of the Navy, is desired. There are a few men in the rating of hospital steward with knowledge of dentistry and dental operations, and valuable service has been rendered by them on the receiving ships *Wabash*, *Hancock*, and *Franklin*, the training stations at Newport, R. I., and San Francisco, Cal., and also at the naval station, Island of Guam. The naval station at Cavite, P. I., has also been supplied in the same way. The dental operations performed by these men, so far as the Bureau furnishes supplies for them, are limited to simple procedures and urgent cases. This arrangement is a makeshift one, unsatisfactory to the Bureau, and can not be pleasing to the dental profession. It is hoped that Congress will act favorably on the plan proposed. The only dentist in the Navy, employed as such, is specially provided for service with midshipmen at the Naval Academy, and is not under the control of this Bureau.

MEDICAL OFFICER ON BOARD OF INSPECTION AND GENERAL BOARD.

The Bureau believes that only good will come from the presence of a medical officer as a member of these boards. The time has passed when the duties of a medical officer are circumscribed by professional care of the sick and injured. His highest function is as a sanitarian, and by training and experience he is qualified to give advice on questions of sanitation which have an important bearing on the living, combative element of the Navy and upon which efficiency and success are as much dependent as upon material strength. In the consideration of problems connected with the development of naval stations, sanitary inspections, quarters for the personnel, food supply best adapted to climate, effects of climate, clothing, location of hospitals and hospital facilities, water supply, recruiting, and other allied matters ashore and afloat, there is room for the sanitarian, and it is believed to be for the best interests of the service that an opportunity be given for the exercise of assistance which can be usefully extended by the officers of the Medical Corps. The Bureau renews its recommendation that a place be given on each of these boards to a representative of the medical department of the Navy.

UNITED STATES NAVAL MUSEUM OF HYGIENE.

A few unimportant additions were made to the collection during the last year. The bacteriological laboratory supplied culture media in dealing with epidemics, threatened or existing, at several stations. The distribution of microscopic outfits and appliances to ships and stations is intrusted to the museum, and considerable chemical and bacteriological work has been done in the laboratories, including examinations of urine, blood, sputum, gastric contents, tumors, etc., and sanitary water analyses. The buildings have been repaired and improved inside and outside, equipped with a complete electric-lighting system, and with apparatus for protection from fire. The improvements have adapted the building to use of the Naval Medical School. The grounds have been beautified and ornamented, particularly by an heroic bronze statue of Dr. Benjamin Rush, of Revolutionary fame, which was, with elaborate ceremonies, unveiled on July 11, 1904, as the gift of the American Medical Association to the United States. The work of erection of the new naval hospital on the grounds, in the rear of the buildings of the museum and medical school, is in progress.

MICROSCOPES.

The necessity of a microscope for clinical diagnosis and sanitary investigation and control has led the Bureau to adopt a liberal policy in responding to requests of medical officers for microscopes, and they are now issued as part of the medical outfit of a vessel or command. This has increased the accuracy of medical service performed and promotes the scientific and professional attainments of the officers of the Medical Corps. The adoption of standard microscopical outfits has been based on investigations made by the naval Museum of Hygiene and Medical School, and all issues of instruments are made from this institution.

MEETINGS OF MEDICAL ASSOCIATIONS.

The value to officers of the Medical Corps of keeping in touch with their professional colleagues in civil life, and thereby keeping pace with the progress and improvements in practice, from which naval life tends to separate them, is fully appreciated. For this reason the Bureau has been ready to take advantage of courteous invitations to have the medical department of the Navy take part in meetings of medical men during the year. Invitations have been received from the associations named, and delegates, whose names follow, have been sent, respectively:

American Public Health Association, Washington, D. C., October 26 to 30, 1903, Medical Director J. W. Ross and Medical Inspector W. R. Du Bose, U. S. Navy; the American Roentgen Ray Society, Philadelphia, Pa., December 9–10, 1903, Surg. C. F. Stokes, U. S. Navy; the Exposition of the Maryland Tuberculosis Commission, Baltimore, Md., January 25, 1904, Medical Director J. C. Wise, U. S. Navy; Southern Surgical and Gynecological Association, Birmingham, Ala., December 14–17, 1903, Medical Director R. C. Persons, U. S. Navy; National Association for the Study and Prevention of Tuberculosis, Atlantic City, N. J., June 6, 1904, Surg. H. G. Beyer, U. S. Navy;

American Medical Association, Atlantic City, N. J., June 7–10, 1904, Medical Director R. A. Marmion and Surg. C. F. Stokes, U. S. Navy; Association of Military Surgeons of the United States, St. Louis, Mo., October 10–15, 1904, convened as an International Congress of Military Surgeons, Medical Director J. C. Wise, U. S. Navy, president; Washington State Medical Association, Seattle, Wash., July 12–14, 1904, Surg. A. R. Alfred, U. S. Navy. An invitation to send a delegate to the International Congress of Otology, Bordeaux, France, August 1–14, 1904, could not be accepted on account of shortage of medical officers.

Surg. S. G. Evans, U. S. Navy, reported on the sessions of the Eleventh International Congress of Hygiene and Demography, Brussels, Belgium, from September 2 to 8, 1903, to which he was delegate, summarizing its conclusions in part as follows:

Prophylaxis of malaria:

1. Immunization by means of the constant use of quinine.
2. Disinfection of the blood of malarial patients by the use of quinine.
3. Mechanical protection of houses and of the exposed parts of the body.
4. Isolation of the sick.
5. Destruction of mosquitoes.
6. Sanitary work, drainage, etc.

The conference expressed absolute confidence in the value of antiplague serum. For a ship itself, quarantine was thought necessary only for the length of time required to destroy all rodents and insects, and the thorough disinfection of ship and cargo.

Medical Director J. C. Wise, U. S. Navy, delegate to the Exposition of the Tuberculosis Commission of Maryland, in his report, says:

> The general opinion prevailed that altitude has no part in the treatment of pulmonary tuberculosis other than when resorted to for change and tonic effect, and that an ideal plan would be to have sanatoria both in the mountains and at the sea level, patients to divide the time between the two as should seem advisable.

Medical Inspector Frank Anderson, U. S. Navy, made a valuable and exhaustive report on the proceedings of the Eleventh International Sanitary Conference, which met at Paris, France, October 10, 1903, and to which he was a delegate, representing the United States. The conference resolved itself into three committees, viz: First. Technical committee, or committee of revision. Second. Committee of execution, or of ways and means. Third. Committee of codification, or coordination of regulations. The most important conclusions of the conference were, viz:

> *Plague.*—Every man affected with plague can transmit the disease. The danger is greater or less according to the form of the infection. * * * As far as rats are concerned it is recognized that these rodents are propagators of plague, especially when the disease is spread by sea. * * * Several members were convinced that the opinion that plague passes from the rat to man by means of stinging insects such as fleas is not sufficiently well-established to justify a declaration to that effect. Five days should be adopted as the time of incubation of plague. * * * Drinking water plays no part whatever in spreading plague.
>
> *Cholera.*—* * * All the world agrees to-day as to the rôle of drinking water in the spread of cholera. * * *
>
> *Yellow fever.*—* * * The conference recommends to countries interested that they so modify their sanitary regulations as to put them in accord with our present knowledge of the mode of transmission of yellow fever, and especially the rôle of mosquitoes as vehicles of the germs of the disease.

After a discussion of various means of disinfection, the conference recognized that—

many experiments would be necessary before recommending any one method as altogether satisfactory; that the question will always remain open, as the processes of disinfection are always being improved, and that consequently it is better to leave each country free to choose for itself from among the processes recognized as giving good results.

The following resolutions were adopted by the conference, viz:

I. There shall be established an international office of health upon the principles adopted in the creation and administration of the International Bureau of Weights and Measures. This bureau shall have its seat in Paris.

II. The international office will have as its mission the collection of information upon the advance of infectious maladies. It will receive, to this end, the reports communicated to it by the superior health authorities of the participating states.

III. The office will announce periodically the results of its labors in the official reports which will be communicated to the contracting governments. These reports will be made public.

IV. The office will be maintained by contributions from the contracting governments.

V. The government within whose territory the international health office shall be established will, within the period of three months after signing the acts of conference, submit for the approbation of the contracting states a plan for establishing and operating this institution.

The estimated expense of establishing this institution would be about 100,000 francs annually. This would be apportioned among the different states according to their size and population, and upon this principle the share to be borne by the United States would be approximately 6,000 francs. The delegates of the United States not having been granted plenary authority, Medical Inspector Anderson made the following statement on behalf of the delegation, viz:

The delegation of the United States has the honor to declare that, while accepting the conclusions of the conference, it can not assume any obligation that will be binding upon the United States to act in accordance with these conclusions, but it will recommend to its Government the acceptance of the decisions of the conference. It feels compelled, however, to make the following reservation, viz: The sanitary authority of the United States can not accept the substitution of surveillance for observation, for the reason that the police system and the particular laws of the different States would render it impossible to carry out this measure. With this reservation, the delegation of the United States is willing to sign the convention.

PROVISION FOR CARE OF SICK WITH TUBERCULOSIS.

The concern of national, state, and municipal governments over the ravages of tuberculosis, and the interest of humanity in every measure taken to limit its spread, has been manifested by the organization of congresses, expositions, and associations for consideration of the subject. The Bureau is in sympathy with the movement because of its importance to the health and welfare of the personnel of the Navy, and, through medical officers sent as delegates to meetings in the United States, has kept in close touch with it. During the year the privilege of sending tuberculous patients to the army general hospital at Fort Bayard, N. Mex., has been availed of, but only for selected cases. The annoyance and difficulty of enforcing proper disciplinary control of naval patients under army regulations has led the medical officer in command to request transfer in a number of instances. The consensus of professional experience and opinion in regard to treatment of this disease is that the most hopeful method involves continuous open-air exposure, most nutritious feeding, and other features of an hygienic regimen. The locality, or elevation of locality, is not of primary importance.

The Bureau recognizes a service obligation to the unfortunate victims of the malady, and is disposed, with the concurrence of the patient, to give him the best chance for recovery or improvement prior to discharge from the service. The necessity for protecting other patients in a general hospital from becoming infected by contact with tuberculous sick makes it most desirable that special provision for the separate care of this disease should be made at some place conveniently accessible for supplies and yet somewhat remote from populous localities. In default of any special sanitarium under the control of the Bureau, and to meet temporarily urgent needs, an experimental camp for tuberculous sick, consisting of 21 canvas tents, was established as an annex to the naval hospital at Pensacola, Fla., toward the end of the year 1903. The lack of many conveniences at this hospital, such as sewerage, abundant water supply, etc., has made the management of the camp difficult and inconvenient, but from results obtained in an experience of less than one year benefit from a sanitarium located at tide level can be hopefully expected.

Impressed with the conveniences to be had ready to hand at the idle naval station at Port Royal, S. C., and certain favorable climatic conditions prevailing there, the Bureau recommended the establishment of a camp for tuberculous cases at that locality. This, however, did not meet with approval by the Department.

The limit to expansion of the camp at the naval hospital at Pensacola, Fla., has been practically reached, and additional cases must be provided for elsewhere until facilities at that locality are greatly improved. The necessity for a well-established camp or sanitarium for the care of about 125 tuberculous patients and capable of expansion as need requires, exists, and the Bureau recommends that Congress be asked to make special provision for the acquisition of an appropriate site.

HOSPITAL SHIPS.

Maturer study and consideration of the subject of the need of hospital ships as an essential and integral part of the fleet has satisfied the Bureau of the wisdom of its recommendation that they be provided for by Congress. In a preceding report the Department was informed that the Bureau of Construction and Repair had laid down plans for a model hospital ship with a capacity of 300 patients, based on plans prepared by the Bureau, which, it was thought, would best meet service requirements. It is believed that such a vessel, primarily designed for a hospital ship, would prove far more efficient and satisfactory than one diverted from a commercial use and hastily converted, as was done in the case of the *Solace*, under exigency of war. In time of peace such a vessel would be most useful, acting with the large or combined squadrons in the extensive drills now prescribed, furnishing a conveniently accessible ambulant naval hospital.

In the decision to repair the ship *Relief* at Mare Island, Cal., for commission as a naval hospital ship, the need on the Pacific coast has been met for the time. The Bureau renews its recommendation that an appropriation for the construction of a suitable hospital ship for the Atlantic side be requested of Congress. The medical officer of the U. S. S. *Vicksburg*, Passed Asst. Surg. Henry D. Wilson, U. S. Navy, gives striking testimony to the need of a fully equipped hospital ship after a naval engagement between modern ships, stating that he was sent to aid in the care of the wounded of the Russian ship *Variag*, after her engagement with the Japanese vessels off Chemulpo. In spite of the fact that the ships were from three to seven thousand yards apart and only the main batteries were employed, there were about 100 men disabled in a fight lasting not over twenty-five minutes. Though well fitted, as was supposed, with hospital facilities for ordinary emergencies, the medical and surgical equipment of the *Variag* was utterly inadequate to the necessities of the occasion. It would seem to have been sufficiently demonstrated that it is not practicable to carry a sufficient number of medical officers and attendants as part of a ship's complement to meet the situation resulting from a fight between modern ships. It is improbable that proper surgical aid to the wounded during an engagement can be given, and it should not be overlooked that the number of medical officers on any vessel is very limited and that they share in common with their combatant shipmates the chances and dangers of battle. In naval fights between single ships the absence of a hospital ship would be a misfortune, and when a number of ships are engaged its absence would be a calamity.

UNITED STATES NAVAL HOSPITAL SHIP RELIEF.

The overhauling and outfitting of this vessel at the Mare Island Navy-Yard, authorized by the Department, is nearly completed, and the ship will soon be in condition to be commissioned for service as a naval hospital ship. Accommodation is provided in well-appointed wards for 178 men, and, in separate spaces, for 10 warrant officers and for 5 junior commissioned officers. There are four principal wards, with proper ward dependencies, such as lavatories, baths, closets, linen and dressing rooms. Of these wards, one for convalescents is located on the forward part of the main deck, one for surgical cases in a space adjacent to the operating room in the after part of the main deck, one for strictly medical cases in the after part of the upper deck, and one, which is intended for infectious diseases, is located on the after part of the hurricane deck, and is fitted with an impervious floor and portable wire-screen walls, with a double-canvas awning for roof. This ward is effectively screened, is to be fly and mosquito proof, and is admirably suited for service under tropical conditions. A large ice and refrigerating plant, with abundant cold-storage rooms, a well-equipped laundry, and ample disinfecting chamber, for use of steam or formaldehyde, are supplied.

The ship is supplied with a complete and elaborate medical and surgical outfit, a well-appointed aseptic operating room with sterilizing apparatus in an adjacent apartment, and a fully equipped X-ray and photographic room. A well-appointed dental office, a microscopical and bacteriological laboratory, and an electrical room supplied with all modern electro-therapeutical appliances are to be found on the vessel. Two steam launches, specially designed for carrying stretcher cases, and a sufficient number of small boats with various appliances for transportation of the sick and wounded, form a part of the ship's equipment. Two padded cells, for insane patients, and a mortuary room are provided. The ship has an ample supply of tanks for the storage of water, and arrangements for flushing are efficient. While lacking some of the features desired in a hospital ship, and which should be found on a vessel specially designed for such service, it is nevertheless believed that in the *Relief* the naval service will secure an efficient and fairly satisfactory hospital ship. A more detailed account of the various features of the *Relief* will be found in that portion of this volume set apart for special reports. The accommodations for the crew and officers of this ship are ample.

It is with regret that the Bureau learns that the shortage of officers of the line is deemed such as to cause an indefinite postponement of the time when the *Relief* will be commissioned for active service. Placed in ordinary, and idly resting at the wharf of a navy-yard, her expensive equipment will rust and deteriorate. The interests of the sick kept on board ship on account of the lack of any convenient hospital accommodation, as will be the case at Guantanamo, or overcrowded in an inadequate hospital (as was the case this year at Pensacola, Fla.), during the extended winter maneuvers in the Caribbean Sea or in the Gulf of Mexico, demand the facilities and services of the *Relief* as a part of the great fleet annually assembled. The Bureau earnestly recommends that the *Relief* be placed in commission in time to cooperate with the squadrons to be assembled in southern waters for fleet exercises in the coming winter.

THE EXHIBIT OF THE BUREAU OF MEDICINE AND SURGERY AT THE LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, 1904.

Under the direction of the Bureau of Medicine and Surgery an interesting and illustrative exhibit of articles used by the Medical Department of the United States Navy in the equipment of dispensary, sick bay, operating, and bath rooms of a vessel of war was prepared and installed in the bow of the improvised battle ship located in the naval section of the Government Building of the Exposition at St. Louis, Mo. The allotment of space was insufficient to allow an exhibition of a complete model or type of various subdivisions with appropriate fittings in situ, as was contemplated.

BOOK OF INSTRUCTIONS.

Under the supervision of the Bureau this long-contemplated and much-needed compilation has reached the stage of readiness for publication. As originally outlined it was proposed to incorporate therein a comprehensive collection of the laws and regulations based thereupon, instructions relating to the duties of the medical officer ashore and afloat, all necessary information pertaining to recruiting, requisitions, and supplies, and to forms, reports, and returns.

The need of such a vade mecum has long been felt, and would be particularly valuable to the younger members of the Medical Corps in simplifying methods of procedure and in securing uniformity of practice, without which confusion and inaccuracy inevitably result. The exigency of the service, and the latter-day method of recruiting by traveling parties, has compelled the placing of the most important duty of physical examination of recruits in the hands of medical examiners lacking long experience and familiarity with service conditions; and lack of the guidance, which such a book of instructions would supply, has caused embarrassments and emphasized its need. Since the last issue of a book of instructions for medical officers more than two-thirds of the officers of the Medical Corps have entered the service, and the Bureau has had multiplied opportunities of seeing how necessary to the conduct of affairs under its supervision and how essential to the interests of the naval service is the re-issue of such a book. It was found inexpedient to attempt the publication of the comprehensive book of instructions originally designed, and by careful revision a manual of convenient size, similar to that made use of by the Army Medical Corps, has been practically completed and awaits the favorable consideration of the Department prior to its publication. This book of instructions will materially promote the efficiency of the Medical Corps, and, supplementing the regulations by its detailed information, will prove of great value in promoting the sanitary and medical interests of the naval service. The Bureau indulges the hope that there need be no further delay in placing this most helpful and necessary guide in the hands of every officer of the Medical Corps.

STATEMENT OF THE WORK DONE BY THE RECORD AND PENSION DIVISION OF THE BUREAU DURING THE FISCAL YEAR ENDING JUNE 30, 1904.

Pension cases remaining on hand June 30, 1903	77
Received during fiscal year ending June 30, 1904	2,572
Answered during fiscal year ending June 30, 1904	2,628
Remaining on hand June 30, 1904	21
Cases for board of medical examiners received and answered	373
Cases for retiring board received and answered	42
Reports of death received	286
Reports of medical survey received and acted upon	2,533
Cases from Civil Service Commission received and answered	67
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	2,865

STATISTICAL REPORT

OF THE

HEALTH OF THE NAVY AND MARINE CORPS FOR THE YEAR 1903.

The health of the Navy and Marine Corps for the calendar year 1903, as shown by the statistical returns, was good, the ratio of admissions to the sick list per 1,000 of strength being less than the average for the eight years prior to 1902. The ratio is slightly greater, however, than that for last year.

The average strength of the active list during the year 1903 was 37,248, which is an increase of about one-fifth over the previous year, the average strength for 1902 being 31,240. Returns were received by the Bureau of Medicine and Surgery from a force of 36,535, the difference, 713, representing the crews of small vessels not provided with medical officers, officers and men on leave, and those on special or detached duty at places from which medical returns in detail are not received. Reports of death are received from the total force, and the figures representing that strength are used in computing ratios of death, but all other ratios are based upon the number shown by the returns of the Medical Department.

The total number of admissions for all causes was 28,569, the ratio per 1,000 of strength being 782.24, as compared with a ratio of 767.63 for the previous year, and 797.10 for the eight preceding years. There were 24,545 admissions for disease and 4,024 for injury, giving ratios of 671.82 and 110.14, respectively. The corresponding ratios for 1902 were 640.07 and 125.56, from which it may be seen that the admissions for injuries were less, and for disease greater, during the present year.

The daily average of patients was 1,289.03, and the ratio per 1,000 of strength 35.23, both being greater than the previous year, when the daily average was 1,025.93 and the ratio 34.77. The total number of sick days was 470,496, or an average of 12.88 sick days for every man in the Navy and Marine Corps, and the average duration of treatment for each case was 16.49 days. During 1902 the total sick days were 374,466, the average per man 12.05, and the average duration of treatment 16.53 days.

The number of persons invalided from the service during the year for disease and injury was 1,541, giving a ratio of 41.37 per 1,000 of strength. The corresponding figures for last year were 1,144 and

37.81, respectively. The ratio for 1903 is much higher than either that of the previous year or the average ratio for the eight preceding years. This is undoubtedly due to the large number of recruits admitted into the service during the year. The discharges for disability include 1,348 for disease and 193 for injury, with ratios per 1,000 of strength of 36.19 and 5.18, respectively. The corresponding figures for 1902 were 1,001 and 143, with ratios of 33.09 and 4.72, respectively.

There were 224 deaths during the year, giving a ratio of 6.01 per 1,000, which is considerably less than that of the previous year (6.75), or the average of the eight preceding years (6.78). One hundred and sixty-four deaths occurred from disease, with a ratio of 4.40, and 60 from injury (including poison) with a ratio of 1.60.

The following list shows the diseases principally responsible for the increase in admissions to the sick list during the year:

Disease.	Admisions.		Sick days.	
	1903.	1902.	1903.	1902.
Venereal diseases	4,560	3,353	114,571	91,999
Tonsillitis	2,519	1,643	15,536	8,968
Epidemic catarrh	1,529	877	8,587	4,782
Scabies	840	243	9,208	5,006
Mumps	705	330	8,783	4,313
Diphtheria	620	65	20,268	1,212
Pneumonia	315	158	11,247	4,952
Pulmonary tuberculosis	234	180	11,272	11,219
Cerebro-spinal fever	30	1	990	108
Typhoid fever	188	125	8,341	5,475
Otitis media	215	146	5,243	4,149

There was also a general increase in admissions for diseases of the digestive apparatus. Malarial diseases, diarrheal affections, dengue, dysentery and alcoholism gave a much less number of admissions, and smallpox shows a relative decrease. With the exception of the class of "general infectious diseases," venereal diseases gave a greater number of sick days than any other class. The total of 114,571 sick days due to venereal disease is equal to the entire loss of the services of 314 men for the year. This has the same effect upon the fighting strength of the Navy as the loss of a second-class vessel yearly. Gonorrhœa had 1,052, and syphilis 816 admissions, as compared with 771 and 606, respectively, in 1902. The admissions for these diseases are not in proper relation to each other, owing to the fact that many cases of gonorrhœa have not been admitted to the sick list and hence have not been included in the statistical reports. The total admissions for venereal disease during the year are 1,207 in excess of 1902, and the total sick days are 22,572 in excess. This can not be accounted for by the increase in strength.

Epidemics of cerebro-spinal fever, diphtheria, epidemic catarrh, mumps, and pneumonia occurred during the year, and account for the increase in admissions for these diseases. Pulmonary tuberculosis shows a marked increase, and typhoid fever is slightly in excess of 1902.

In comparing these returns with those of the previous year it is noteworthy that while the ratio of admissions to the sick list per 1,000 of strength is greater than in 1902, the mortality is not only less than that of 1902, but lower than the average for the past eight years.

RECRUITING.

The following table shows the record of enlistments and rejections for the year 1903:

Where examined.	Number examined.	Number accepted.	Number rejected.	Color blind.
Receiving ships:				
Wabash, Boston, Mass	159	129	30	2
Columbia and Hancock, New York	1,420	794	626	51
Minneapolis and Puritan, Philadelphia, Pa	234	119	115	5
Franklin, Norfolk, Va	438	295	143	8
Independence, Mare Island, Cal	267	218	49	0
Total	2,518	1,555	963	66
Naval and marine rendezvous:				
Boston, Mass	5,229	2,356	2,873	150
New York, N. Y	1,994	989	1,005	116
Philadelphia, Pa	1,986	859	1,127	63
Puget Sound, Wash	356	239	117	4
Washington, D. C	577	341	236	12
San Francisco, Cal	1,365	1,030	335	8
Baltimore, Md. (temporary)	1,030	452	578	43
Buffalo, N. Y. (temporary)	442	260	182	11
Chicago, Ill. (temporary)	1,774	734	1,040	68
Total	14,703	7,210	7,493	475
Recruiting parties in the field	14,894	8,667	6,227	407
Ships and shore stations other than naval and marine rendezvous and receiving ships	1,772	1,266	506	19
Grand total	33,887	18,698	15,189	967

Number examined	33,887
Number rejected per 1,000 for all causes	476.76
Number rejected per 1,000 for color-blindness	28.62
Number of first examinations	31,012

INSANE OF THE NAVY.[a]

Number of patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1903	149
Admitted during the fiscal year ending June 30, 1904	40
Total	189
Discharged during the fiscal year ending June 30, 1904 (14 died, 29 recovered, 4 improved, 1 unimproved)	48
Remaining in that institution June 30, 1904	141

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[a] Report from State Hospital for Insane, Mendocino, Cal., not received in time for publication.

NAVAL HOSPITALS.

SUMMARY FOR THE YEAR 1903.

Cases met with in the hospitals appear, as a rule, in the returns from the stations where the disease or injury was contracted. All such cases are indicated in Table XIV, page 67, in the column "Readmitted," while diseases or injuries first recorded in hospitals appear in the same table in the column "Admitted," and are regarded as original admissions.

NAVAL HOSPITALS, 1903.

Hospitals.	Number of cases under treatment.				Number invalided from service.				Number dead.				Number discharged to duty.				Average number daily under treatment.	Average number of days' treatment per case.	Total number of sick days.
	Remaining from last year.	Admitted during the year.		Total.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.			
		Diseases.	Injuries.																
Cavite, P. I	39	236	30	305	3	1	4	13.11	2	......	2	6.56	187	19	206	675.41	37.72	44.15	13,577
Chelsea, Mass	59	611	29	699	66	1	67	95.98	2	......	2	2.86	538	27	565	836.91	63.23	33.16	23,229
Mare Island, Cal	111	769	82	962	216	24	240	249.48	15	1	16	16.63	454	39	493	512.47	108.30	41.28	39,728
Newport, R. I	89	1,361	44	1,494	66	8	74	49.53	6	......	6	4.02	1,280	30	1,310	876.84	103.28	24.20	37,876
New York, N. Y	100	1,299	126	1,525	236	37	273	179.02	8	1	9	5.90	941	86	1,027	673.44	132.55	31.95	48,235
Norfolk, Va	93	1,155	100	1,348	90	13	103	76.41	19	5	24	17.80	1,010	88	1,098	814.54	132.62	35.12	48,442
Pensacola, Fla	6	201	15	222	8	......	8	36.04	......	1	1	4.50	163	11	174	783.78	18.22	30.13	6,794
Philadelphia, Pa	59	837	49	945	161	19	180	190.48	17	......	17	17.98	641	27	668	706.87	69.66	26.65	25,251
Port Royal, S. C	1	177	......	178	3	......	3	16.85	......	......	......	......	172	......	172	966.29	12.29	26.51	4,679
Portsmouth, N. H	14	236	15	265	12	......	12	45.27	2	......	2	7.55	213	14	227	856.60	17.17	24.64	6,384
Puget Sound, Wash	......	73	10	83	9	......	9	108.43	4	......	4	48.19	54	5	59	710.84	7.88	31.70	2,643
Sitka, Alaska	2	18	6	26	......	......	......	......	......	......	......	......	19	6	25	962.54	1.10	14.20	366
Washington, D. C	26	290	28	344	21	4	25	72.67	5	......	5	14.53	256	25	281	813.95	25.14	26.32	9,272
Yokohama, Japan	35	199	30	264	28	2	30	113.63	1	......	1	3.79	145	29	174	659.09	27.32	50.28	10,178

STATISTICAL TABLES.

The following statistical tables give in detail the data on which the statements in this report are based:

I. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1903.

II. *North Atlantic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

III. *South Atlantic Station.*—Names of ships, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

IV. *European Station.*—Names of ships, average complements, corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

V. *Pacific Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

VI. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

VII. *Receiving ships.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.

VIII. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1903.

IX. *Force afloat.*—General aggregate, 1903.

X. *Force afloat.*—Detailed statement, 1903.

XI. *Navy-yards, marine barracks, and other shore stations.*—General aggregate, 1903.

XII. *Navy-yards, marine barracks, and other shore stations.*—Detailed statement, 1903.

XIII. *Naval hospitals.*--General aggregate, 1903.

XIV. *Naval hospitals.*—Detailed statement, 1903.

XV. *Report of vaccination for the year 1903.*

XVI. *Prevalence of special diseases* (*relation by scale*).—For the year 1903.

XVII. *Mortuary record for the year 1903.*

XVIII. *Deaths in the Navy and Marine Corps* (*relation by scale*).—During the year 1903.

TABLE I.—*General view of the effects of disease and injury on the Navy and Marine Corps during the year 1903.*

Average strength of the Navy and Marine Corps[a]	37,248
Average strength shown by reports of Medical Department[b]	36,535
Average strength of the force afloat	27,556
Admissions for disease, ashore and afloat	24,545
Ratio per 1,000 of strength	671.82
Ratio per 1,000 for previous year	640.07
Ratio per 1,000 for eight preceding years	651.19
Admissions for injuries, ashore and afloat	4,024
Ratio per 1,000 of strength	110.14
Ratio per 1,000 for previous year	125.56
Ratio per 1,000 for eight preceding years	145.77
Total admissions to sick list during year	28,569
Ratio per 1,000 of strength	782.24
Ratio per 1,000 for previous year	767.63
Ratio per 1,000 for eight preceding years	797.10
Daily average of patients	1,289.03
Ratio per 1,000 of strength	35.28
Ratio per 1,000 for previous year	34.77
Ratio per 1,000 for eight preceding years	32.36
Total number of sick days	470,496
Average for each man of Navy and Marine Corps	12.88
Average for previous year	12.38
Average for eight preceding years	11.61
Average days for each case treated	16.48
Average days for previous year	16.53
Average for eight preceding years	14.23
Discharge from service for disease	1,348
Ratio per 1,000 of strength	36.19
Ratio per 1,000 for previous year	33.09
Ratio per 1,000 for eight preceding years	23.49
Discharges from service for injury	193
Ratio per 1,000 of strength	5.18
Ratio per 1,000 for previous year	4.72
Ratio per 1,000 for eight preceding years	4.13
Total discharges for disability	1,541
Ratio per 1,000 of strength	41.37
Ratio per 1,000 for previous year	37.81
Ratio per 1,000 for eight preceding years	27.61
Deaths from disease	164
Ratio per 1,000 of strength	4.40
Ratio per 1,000 for previous year	4.13
Ratio per 1,000 for eight preceding years	4.53
Deaths from injury (including poison)	60
Ratio per 1,000 of strength	1.60
Ratio per 1,000 for previous year	2.62
Ratio per 1,000 for eight preceding years	2.24
Total deaths from all causes	224
Ratio per 1,000 of strength	6.01
Ratio per 1,000 for previous year	6.75
Ratio per 1,000 for eight preceding years	6.78

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[a] Used in computing ratios of deaths and discharges from the service for disability.

[b] Used in computing all ratios except those of deaths and discharges from the service for disability

TABLE II.—*North Atlantic Station—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1903.*

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Abarenda[a]	59 days	19	24	4	28	1,474	52	0.88	46.3	13	.....	.....
Alabama	Year	640	221	105	326	509	3,226	8.8	13.7	62	6	.....
Alliance[b]	331 days	245	233	38	271	1,106	1,781	5.3	21.6	52	1	.....
Amphitrite[a]	15 days	5	1	.....	1	200	4	.27	54.0	.....	.....	.....
Arkansas	Year	162	80	29	109	673	715	1.9	11.7	16	4	.....
Atlanta	do	287	145	37	182	634	1,217	3.3	11.5	35	.....	.....
Baltimore[a]	240 days	234	162	30	192	821	1,207	5.0	21.4	59	.....	.....
Bancroft	Year	136	112	19	131	963	1,686	4.6	33.8	33	1	.....
Buffalo	do	588	434	56	490	833	3,664	10.0	17.0	208	9	.....
Castine[a]	50 days	19	14	1	15	789	68	1.3	68.4	6	.....	.....
Chesapeake[c]	122 days	46	38	7	45	978	216	1.8	39.1	6	1	.....
Cleveland[a]	60 days	47	19	8	27	574	152	2.5	53.1	3	.....	.....
Columbia[a]	53 days	53	18	6	24	453	58	1.0	18.9	18	.....	.....
Culgoa	Year	178	103	27	130	730	1,384	3.8	21.3	58	1	.....
Dixie[a]	91 days	52	59	13	72	1,385	449	4.9	94.3	17	.....	.....
Dolphin	Year	138	109	12	121	877	735	2.0	14.5	28	.....	.....
Eagle	do	56	36	13	49	875	477	1.3	23.2	9	.....	.....
Essex[b]	339 days	192	100	12	112	583	1,039	3.0	15.6	28	1	.....
Fish Hawk	Year	43	6	3	9	209	169	.46	10.7	2	.....	1
Florida[a]	197 days	98	29	13	42	429	172	.87	8.9	15	.....	.....
Glacier[b]	198 days	64	22	6	28	437	391	1.9	29.7	1	.....	.....
Hancock[b]	68 days	39	28	3	31	795	307	4.5	115.4	7	.....	.....
Hartford	Year	445	263	51	314	706	1,741	4.8	10.8	29	.....	1
Hist	do	47	22	2	24	511	70	.19	4.0	12	.....	.....
Hull[a]	184 days	17	14	10	24	1,412	123	.66	38.8	3	.....	.....
Illinois	Year	617	156	40	196	318	1,356	3.7	6.0	39	.....	.....
Indiana[b]	357 days	457	337	62	399	873	2,371	6.6	14.4	64	3	.....
Iowa[c]	190 days	249	90	26	116	466	1,068	5.6	22.5	35	3	4
Kearsarge	Year	673	347	107	454	674	3,877	10.6	15.7	81	.....	2
Lancaster[b]	121 days	161	182	13	195	1,211	1,179	9.7	60.2	19	2	.....
Maine	Year	640	439	67	506	791	2,700	7.4	11.6	122	8	3
Marietta[b]	126 days	58	23	4	27	509	286	2.3	43.4	10	1	.....
Massachusetts	Year	500	217	66	283	566	1,905	5.2	10.4	92	.....	5
Mayflower	do	176	155	26	181	1,028	922	2.3	13.1	38	.....	.....
Michigan	do	94	27	4	31	330	379	1.0	10.6	1	1	.....
Minneapolis[b]	85 days	95	36	8	44	463	293	3.4	35.8	9	1	1
Missouri[a]	31 days	40	46	3	49	1,225	253	8 1	202.5	8	.....	.....
Monongahela	Year	315	254	23	277	879	2,303	6.3	19.9	21	.....	1
Nashville	do	186	132	12	144	774	1,248	3.4	18.3	16	.....	.....
Nevada[a]	302 days	135	138	27	165	1,222	1,170	3.8	28.1	45	.....	.....
Newport[a]	228 days	102	44	4	48	471	278	1.2	11.8	11	.....	.....
Olympia	Year	447	309	74	383	857	1,741	4.8	10.7	32	.....	2
Panther[b]	273 days	219	73	18	91	411	1,014	3.7	16.7	3	.....	.....
Peoria[a]	268 days	25	2	3	5	200	67	.25	10.0	.....	.....	.....
Prairie	Year	501	423	91	514	1,026	4,236	11.6	23.2	125	9	1
Puritan[b]	106 days	72	43	10	53	736	352	3.3	45.8	11	.....	.....
Scorpion	Year	96	73	18	91	948	718	1.9	19.8	14	2	.....
Southery[a]	184 days	118	49	3	52	441	267	1.4	11.9	41	.....	.....
Texas	Year	464	290	50	340	733	2,261	6.2	13.4	60	12	2
Topeka	do	294	251	40	291	990	2,112	5.8	19.7	52	3	.....
Torpedo boats:												
First division	do	363	151	35	186	512	1,084	2.9	7.9	68	.....	1
Second division[a]	207 days	190	86	16	102	537	419	2.0	10.5	36	.....	.....
Vixen	Year	80	37	17	54	675	529	1.4	17.5	10	.....	.....
Wasp	do	50	47	7	54	1,080	151	.41	8.2	16	.....	.....
Yankee[a]	245 days	378	257	37	294	778	1,683	6.9	18.3	38	2	.....
Yankton[b]	311 days	79	47	2	49	620	292	.94	11.9	7	.....	.....

[a] Commissioned. [b] Put out of commission. [c] Commissioned and put out of commission.

TABLE III.—*South Atlantic Station—Average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1903.*

Name of ship.	Periods in commission.	Average complements.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Detroit	Year	251	124	30	154	614	1,456	3.9	15.5	14	.....	.....
Gloucester	do	66	79	12	91	1,379	766	2.1	31.8	7	.....	.....
Montgomery	do	228	169	45	214	939	2,402	6.6	116.7	16	.....	2
Newark	do	417	329	66	395	947	3,240	8.8	21.1	36	.....	1

TABLE IV.—*European Station—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1903.*

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Brooklyn[a]	209 days	357	166	37	203	569	1,583	7.6	21.3	18	4	.....
Chicago	Years	424	226	55	281	663	2,181	5.9	13.9	48	1	3
Machias	do	151	165	32	197	1,305	818	2.2	14.6	2	.....	.....
San Francisco	do	325	269	29	298	917	3,149	8.6	26.5	18	1	.....

[a] Commissioned.

TABLE V.—*Pacific Station—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1903.*

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Adams	Year	198	286	41	327	1,652	1,879	5.1	25.8	15	3	3
Albatross	do	69	38	17	55	797	396	1.1	15.9	11	.....	.....
Alert	do	165	117	18	135	818	1,100	3.0	18.2	84	2	.....
Bennington[a]	304 days	142	75	22	97	683	608	2.0	14.1	19	.....	.....
Boston	Year	244	100	31	131	537	920	2.5	10.2	27	.....	1
Concord[a]	200 days	97	49	14	63	649	516	2.5	25.7	23	.....	.....
Iroquois	Year	56	12	4	16	286	298	.81	14.5	.....	.....	.....
Marblehead	do	255	101	25	126	494	1,124	3.1	12.2	28	1	1
Mohican	do	318	113	19	132	415	1,167	3.2	10.1	40	3	1
New York	do	560	306	90	396	707	2,307	6.3	11.2	42	3	.....
Perry[b]	348 days	84	54	15	69	821	269	.77	9.2	17	.....	1
Petrel[a]	74 days	24	24	4	28	1,167	109	1.5	62.5	13	.....	.....
Preble[a]	18 days	4	2	1	3	750	7	.4	100.0	1	.....	.....
Ranger[b]	162 days	55	48	9	57	1,036	316	1.9	34.5	6	.....	.....
Solace	Year	355	114	30	144	406	3,674	10.0	28.2	94	2	3
Wheeling	do	193	129	42	171	886	2,668	7.3	37.8	4	3	.....
Wyoming	do	176	159	36	195	1,108	1,084	2.9	16.5	43	1	1

[a] Commissioned.

[b] Put out of commission.

TABLE VI.—*Asiatic Station—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1903.*

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Albany	Year	373	426	140	566	1,517	4,799	13.1	35.1	23	....	1
Annapolis	do	148	92	24	116	784	991	2.7	18.2	36	....	....
Celtic[a]	261 days	78	21	6	27	346	457	1.7	21.8	25	....	....
Cincinnati	Year	314	98	24	122	388	1,676	4.6	14.6	24	2	1
Don Juan de Austria	do	144	56	16	72	500	628	1.7	11.8	6	....	1
El Cano	do	110	66	9	75	682	575	1.6	14.5	4	1	2
Frolic	do	74	82	10	92	1,243	538	1.5	20.3	12	....	....
Helena	do	215	69	28	97	432	746	2.0	8.9	2	....	....
Iris[a]	352 days	86	36	7	43	500	464	1.3	15.1	13	....	....
Isla de Cuba	Year	144	92	8	100	694	555	1.5	10.4	12	1	....
Isla de Luzon[a]	94 days	33	46	9	55	1,667	673	7.1	215.2	11	....	....
Kentucky	Year	697	271	70	341	489	3,241	8.9	12.7	26	....	....
Monadnock	do	224	100	30	130	580	1,628	4.4	19.6	11	....	3
Monocacy[a]	273 days	75	16	6	22	293	220	.81	10.8	1	....	....
Monterey	Year	208	97	17	114	548	1,806	4.9	23.6	8	2	....
New Orleans	do	346	136	30	166	479	2,267	6.2	17.9	31	1	1
Oregon	do	476	370	92	462	970	3,900	10.7	22.4	63	....	....
Piscataqua	do	45	48	6	54	1,200	223	.61	13.6	13	....	....
Princeton[a]	163 days	84	22	8	30	357	378	2.3	27.4	10	1	....
Rainbow	Year	296	160	32	192	649	1,614	4.4	14.7	24	....	....
Raleigh[b]	360 days	326	243	52	295	905	1,701	4.7	14.4	74	1	....
Supply	Year	134	87	18	105	783	1,403	3.8	28.3	9	....	....
Vicksburg	do	157	89	11	100	646	1,078	2.9	18.7	14	1	1
Villalobos	do	53	54	9	63	1,188	312	.85	16.0	5	....	....
Wilmington	do	213	108	28	136	638	1,266	3.5	16.4	5	....	2
Wisconsin	do	599	256	65	321	536	2,610	7.1	11.9	39	3	2
Wompatuck	do	32	15	4	19	594	249	.68	21.3	2	....	....
Yorktown[a]	168 days	86	28	7	35	407	773	4.6	53.5	19	....	1

[a] Put out of commission.

[b] Commissioned.

TABLE VII.—*Receiving ships—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1903.*

Names of ships.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Wabash, Boston	Year	693	355	31	386	557	912	2.5	3.6	278	25	5
Columbia, New York[a]	264 days	871	510	39	549	630	1,565	5.9	6.8	352	17	2
Hancock, New York[b]	101 days	393	214	27	244	621	1,031	10.2	26.4	121	9	1
Minneapolis, League Island.[a]	152 days	242	407	29	436	1,802	737	4.8	19.8	326	16	1
Puritan, League Island.[b]	168 days	284	147	17	164	578	498	2.9	10.2	124	10	....
Lancaster, League Island.[b]	45 days	52	17	2	19	365	94	2.1	40.3	10	4	....
Franklin, Norfolk	Year	1,624	1,717	101	1,818	1,119	5,471	15.0	9.2	519	82	3
Independence, Mare Island.	do	694	310	43	353	509	1,847	5.0	7.2	162	39	3

[a] Put out of commission.

[b] Commissioned.

TABLE VIII.—*Navy-yards, marine barracks, and other shore stations—Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1903.*

Names of stations.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Navy-yards:												
Boston	Year	415	177	25	202	487	618	1.7	4.1	115	12	....
Charleston	88 days	9	7	1	8	889	41	.49	5.9	......	....	....
League Island	Year	427	255	26	281	658	859	2.3	5.4	154	10	....
Mare Island	do	282	126	21	147	521	1,352	3.7	13.2	60	9	1
New York	do	475	266	43	309	651	1,661	4.5	9.4	107	6	....
Norfolk	do	378	138	26	164	434	786	2.2	5.8	84	14	1
Pensacola	do	182	62	14	76	418	544	1.5	8.2	35	2	....
Portsmouth	do	155	128	25	153	988	379	1.04	6.7	113	1	....
Puget Sound	do	211	104	32	136	645	1,314	3.6	17.0	22	7	1
Washington	do	236	139	16	155	657	274	.75	3.2	99	1	1
Marine barracks and camps:												
Cavite	120 days	52	48	8	56	1,077	614	5.11	42.5	7	....	....
Olongapo	Year	436	216	26	242	555	2,860	7.8	17.8	36	....	1
Pollok	do	50	55	7	62	1,240	423	1.16	23.2	8	....	....
Port Isabela	do	81	54	7	61	753	532	1.46	18.0	8	....	2
Culebra and Panama:												
Camp Roosevelt	do	89	101	12	113	1,270	1,488	4.08	45.8	31	....	1
Camps Dewey and Elliot.	do	298	303	55	358	1,201	3,583	9.8	32.9	23	....	....
Camp Moody	10 days	9	8	2	10	1,111	34	3.4	37.7	......	....	....
On the Dixie	5 days	9	36	1	35	3,889	63	12.6	140.0	6	....	....
Washington, D. C.	Year	418	184	51	235	562	1,742	4.8	11.4	98	....	....
Naval stations:												
Academy	do	900	1,117	145	1,262	1,402	7,251	19.9	22.1	13	4	4
Cavite	do	396	386	48	434	1,096	3,195	8.7	21.9	51	....	1
Dry Tortugas	do	30	12	3	15	500	217	.59	19.6	1	1	...
Guam	do	160	103	12	115	719	1,438	3.9	24.3	29	....	4
Hawaii	83 days	18	10	5	15	833	207	2.5	138.8	......	....	....
Habana	66 days	3	1	.....	1	333	31	.47	156.6	......	....	....
Indian Head	Year	7	3	.....	3	428	15	.04	5.7	1	....	....
Iona Island	do	14	5	4	9	643	44	.12	8.5	......	....	1
Key West	do	50	36	9	45	900	1,159	3.17	63.4	......	1	2
Newport	do	1,208	1,252	73	1,325	1,097	2,889	7.9	6.5	1,065	40	....
Port Royal	do	109	48	10	58	532	387	1.06	9.7	21	1	1
San Francisco	do	609	713	54	767	1,259	9,643	26.4	43.3	115	55	4
San Juan	do	136	136	9	145	1,066	4,956	13.6	100.0	62	2	6
Special duty:												
Philadelphia	do	......	13	.....	13	....	138	.38	......	1	....	....
Washington	do	......	51	5	56	....	499	1.36	......	3	....	....
San Francisco	do	......	10	.....	10	....	32	.08	......	1	....	2

TABLE IX.—*Force afloat—General aggregate, 1903.*

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	3	690	35	386	341	....	....	....	....	....	1	1,510
Class II.												
General infectious diseases (non-venereal)	64	3,758	302	2,697	1,338	22	1	....	2	10	54	20,846
Class III.												
Constitutional disorders of nutrition.	2	84	21	51	44	6	....	....	....	....	6	1,107
Class IV.												
Diseases of the nervous system	21	1,249	119	1,020	277	56	3	6	....	13	14	7,198
Class V.												
Diseases of the visual apparatus	8	272	33	178	108	32	....	....	....	....	5	2,379
Class VI.												
Diseases of the auditory apparatus	3	161	21	112	54	14	1	....	....	....	4	1,074
Class VII.												
Diseases of the olfactory apparatus	1	58	3	45	10	2	....	....	....	....	....	255
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	60	3,543	147	3,013	655	18	1	....	....	3	60	14,664
Subsidiary class 2—Diseases of the circulatory apparatus	7	268	40	145	125	28	1	....	....	7	9	3,037
Subsidiary class 3—Diseases of the respiratory apparatus	25	1,272	75	1,098	229	13	4	....	....	3	25	8,372
Class IX.												
Diseases of the motory apparatus	8	501	50	427	108	13	....	....	....	....	11	3,997
Class X.												
Diseases of the cutaneous apparatus	34	1,712	102	1,687	159	7	....	....	1	....	44	14,375
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	81	3,561	331	2,911	983	49	....	....	....	1	79	35,645
Class XII.												
Cysts and new growths	......	44	3	22	23	2	....	....	....	....	....	269
Class XIII.												
Injuries	85	2,902	120	2,566	404	37	....	....	1	35	64	25,666
Class XIV.												
Extraneous bodies	......	12	1	13	......	....	....	....	....	....	....	102
Class XV.												
Poisons	5	280	17	264	31	6	....	....	....	....	1	1,775
Class XVI.												
Feigned diseases	......	5	1	5	1	....	....	....	....	....	....	9
Total	407	20,367	1,421	16,585	4,835	305	11	6	4	72	377	142,580

TABLE X.—*Force afloat—Detailed statement, 1903.*

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS I.												
Parasites and parasitic diseases.												
Filaria sanguinis		1			1							26
Pediculus		7		3	4							7
Pityriasis		1			1							3
Scabies	1	615	31	325	322							1,430
Tænia	1	9	1	11								34
Tinea favosa		11		9	1						1	67
Tinea trichophytina		37	1	27	11							187
Trichinosis	1	5	1	7								12
Other diseases of this class		4	1	4	1							94
CLASS II.												
General infectious diseases (non-venereal).												
Cachexia malarialis		14		8	6							56
Catarrhus epidemicus	23	1,256	29	1,200	103				1	1	3	4,683
Cholera		2	1	1	1					1		8
Cholera morbus		12	1	13								52
Denguis	1	151	7	149	6						4	942
Diphtheria	1	121	1	7	114					2		193
Dysenteria acuta		51	3	41	9					1	3	460
Dysenteria chronica		14	19	6	26						1	701
Erysipelas		15		9	6							145
Febris cerebro-spinalis		22			22							15
Febris enterica	2	111	14	25	93	1	1			2	5	1,349
Febris intermittens	7	384	94	431	49				1		4	1,916
Febris pneumonica	4	151	8	29	123					8	3	881
Febris recurrens		3		3								20
Febris remittens	9	277	38	262	59						3	1,977
Morbilli		140	2	10	132							158
Paralysis ascendens acuta		4		1	3							18
Parotitis epidemica		381	4	108	277							1,406
Pertussis	1	15		2	14							8
Rheumatismus articularis acutus	8	231	36	183	78						14	2,356
Rheumatismus articularis chronicus	1	79	14	40	49	3					2	627
Rubella		16		11	5							63
Scarlatina		11			11							7
Septicæmia		5		2	3							40
Tuberculosis miliaris acuta		2	1		3							126
Tuberculosis pneumonica acuta		31	2	2	23	7					1	377
Tuberculosis pneumonica chronica	6	91	24	11	97	10					3	1,281
Tuberculosis *of other parts*		7	1	3	4	1						83
Vaccina	1	135	2	135							3	701
Varicella		13		2	11							36
Variola		7	6	1	8						4	148
Other diseases of this class		6		2	3						1	63
CLASS III.												
Constitutional disorders of nutrition.												
Anæmia	2	54	18	32	33	5					4	849
Debilitas senilis		2		2								16
Diabetes insipidus		4			4							19
Diabetes mellitus		5	1	2	3						1	22
Lithæmia		6		5	1							52
Purpura hæmorrhagica		1		1								12
Purpura simplex		2			2							14
Other diseases of this class		10	2	9	1	1					1	123
CLASS IV.												
Diseases of the nervous system.												
Apoplexia		2			1					1		2
Aphasia		3			2						1	10
Atrophia muscularis progressiva			1		1							8
Cephalalgia		49	2	44	6						1	207

TABLE X.—*Force afloat—Detailed statement, 1903*—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IV—continued.												
*Diseases of the nervous system—*Continued.												
Chorea		3			8							21
Dementia	2	35	8	5	32	4		1		1	2	518
Encephalitis		1		1								1
Epilepsia		67	17	27	38	15				2	2	647
Febris continua simplex	5	246	7	244	11						3	1,438
Febris ephemera	2	315	2	313	6							837
Febris thermica		23		21	1						1	74
Hemicrania		2		2								4
Hemiplegia		10	1		9	1				1		170
Insomnia		3			3							1
Irritatio spinalis		3		2	1							23
Mania		13	2	5	5	2		2		1		85
Melancholia	2	37	11	6	39	4		1				542
Meningitis		4			1					3		38
Monoplegia	2	5	2	3	6							77
Myelitis		1								1		9
Nausea marina	1	70	19	78	5	7						228
Neuralgia	3	85	11	86	8	3					2	530
Neurasthenia	1	68	15	29	41	10	3				1	580
Neuritis		22	3	10	15							161
Neuritis multiplex	1	3	1	2	3							72
Neurosis hysteroidea		17	7	14	7	3						100
Paralysis agitans		1				1						11
Paranoia		5	3	1	5			2				72
Paraplegia		1								1		1
Prostratio thermica	1	66		64	1	1				1		180
Sciatica	1	20	3	13	11							224
Sclerosis spinalis posterior		1	2		3							75
Syncope		16		13	2					1		31
Torticollis spasmodica		9		9								29
Vertigo		29	1	21	7	2						125
Other diseases of this class		14	1	7	4	3					1	67
CLASS V.												
Diseases of the visual apparatus.												
Achromatopsia	1	1	1	1		2						11
Amaurosis		9	1	1	5	4						39
Amblyopia		9	1	1	7	2						67
Asthenopia		9	2	1	4	5					1	133
Astigmatismus		14	2	4	6	6						97
Blepharitis		2		2								5
Cataracta		1	1		2							35
Chalazion		2		2								10
Conjunctivitis	4	119	11	106	24	2					2	1,052
Corneæ ulcus		6	1	5	1	1						45
Dacryocystitis		2	1	2	1							30
Glaucoma		1			1							28
Hordeolus		4		4								11
Hypermetropia		3	2	3	2							13
Iritis	8	23	4	17	11						2	401
Keratitis		14	1	9	6							107
Leucoma		6	1	3	4							18
Myopia		15	3	3	8	7						61
Neuritis optica		2			1	1						10
Panophthalmitis		1			1							69
Pterygium		16		4	11	1						48
Retinitis		6	1	2	4	1						62
Sclerotitis		3		1	2							3
Synechia		1			1							0
Trachoma		2		2								24
Other diseases of this class		1			1							0
CLASS VI.												
Diseases of the auditory apparatus.												
Otalgia		4		3	1							9
Otitis externa	1	33		31	2						1	135
Otitis media	2	99	16	64	44	6					3	692
Surditas		21	5	12	5	8	1					218
Other diseases of this class		4		2	2							20

TABLE X.—*Force afloat—Detailed statement, 1903*—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VII.												
Diseases of the olfactory apparatus.												
Antri abscessus		1			1							1
Rhinitis acuta	1	38		38	1							117
Rhinitis chronica		11	2	8	8	2						126
Other diseases of this class		3	1	4								11
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS.												
Subsidiary class 1—Diseases of the digestive apparatus.												
Adenitis salivosa		10		10								60
Ani prolapsio		5	1	1	3	2						44
Appendicitis	4	99	29	52	76	1				3		975
Catarrhus gastricus acutus	1	133	4	126	12							495
Catarrhus gastricus chronicus	1	22	5	11	13	1	1				2	176
Catarrhus intestinalis acutus	3	119	3	119	6							637
Catarrhus intestinalis chronicus	1	22	8	17	14							359
Cholelithiasis		7	3	10								55
Colica		151	7	151	2	1					4	371
Constipatio	1	80	4	82	2	1						271
Dentis caries		47		38	1	8						149
Diarrhæa simplex	1	321	5	320	6						1	1,037
Dyspepsia nervosa		14	1	10	5							116
Fistula in ano	2	23	4	6	22	1						191
Gastralgia		6		6								17
Hæmatemesis		5		4	1							22
Hæmorrhoids		127	16	54	85	3					1	567
Hepatis congestio		20		19	1							106
Hepatitis acuta		1		1								6
Hepatitis chronica		1	1	1	1							21
Hepatitis suppurativa		1			1							23
Hypertrophia tonsillaris		9		3	6							27
Icterus	1	42	2	31	14							320
Obstructio intestinalis		2		1	1							15
Odontalgia	1	4		5								18
Parulis		1		1								4
Periodontitis		6		4	2							7
Peritonitis	1	2		3								14
Pharyngitis		176	3	96	82						1	421
Stomatitis	1	13	1	10	4						1	86
Tonsillitis	41	1,940	47	1,705	283						40	7,488
Typhlitis		120	2	107	5						10	522
Ulcus gastricum		2			2							6
Uvula descendens		1		1								2
Other diseases of this class	1	11	1	8	5							41
Subsidiary class 2.—Diseases of the circulatory apparatus.												
A—Blood vessels:												
Aneurysma		3	1		3	1						36
Angina pectoris		5	2	2	3	1				1		94
Cordis dilatatio		7	1	1	1	1				5		70
Cordis hypertrophia		9	1	3	5	2						120
Cordis palpitatio	1	70	7	32	34	11					1	377
Cordis valvularum morbus	1	35	7	9	17	11	1			1	4	490
Embolismus		1			1							0
Endocarditis		1			1							18
Myocarditis		2	1	1	1	1						46
Pericarditis		1	1		2							39
Phlebitis		6		5	1							66
Varix		18	6	6	17						1	146
B—Lymphatics:												
Bronchocele		1	1	1	1							3
Lymphadenitis	4	98	11	76	35						2	1,408
Lymphangitis	1	9	1	8	3							108
Other diseases of this class		2		1							1	16

TABLE X.—*Force afloat—Detailed statement, 1903*—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—continued.												
Subsidiary class 3.—Diseases of the respiratory apparatus.												
Asthma	2	33	8	24	12	5	1				1	405
Bronchopneumonitis	2	24		9	13		1			3		237
Bronchitis acuta	12	463	22	433	54						10	2,974
Bronchitis chronica		80	17	37	49	5	1				5	1,043
Catarrhus bronchialis	5	498	11	485	27						2	2,280
Hæmoptysis		20	5	10	12	2					1	172
Laryngitis acuta	1	45	1	39	7						1	184
Laryngitis chronica		7	3	4	5						1	56
Pleuritis acuta	3	82	5	51	36						3	621
Pleuritis chronica		16	3	5	12	1					1	394
Pleuritis purulenta		2			1		1					2
Other diseases of this class		2		1	1							4
CLASS IX.												
Diseases of the motory apparatus.												
Ankylosis		9			4	4					1	139
Arthritis	1	31	8	21	18	1						368
Arthritis deformans		1			1							1
Bursitis		16	1	14	3							159
Caries		1			1							1
Contractura		1			1							8
Myalgia acuta	4	299	25	305	16						7	1,623
Myalgia chronica		56	8	38	21	4					1	586
Necrosis		8	1	2	7							99
Ostitis	1	4	1	1	4	1						48
Osteomyelitis		2		1							1	80
Periostitis		24	1	11	14							395
Synovitis	1	36	5	25	16						1	405
Thecitis	1	10		9	2							63
Other diseases of this class		3				3						27
CLASS X.												
Diseases of the cutaneous apparatus.												
Abscessus	18	711	26	677	56	1					16	5,669
Acne		7	1	2	6							29
Carbunculus		24	1	24							1	159
Cellulitis	3	120	6	112	12	1					4	1,070
Clavus		11		10							1	68
Cutis fissuræ		6		6								32
Ecthyma		11	2	9	3						1	137
Eczema	7	74	16	64	27	1					5	895
Erythema		21		19	1						1	107
Furunculus	4	360	19	370	3						10	1,996
Herpes simplex		4	2	6								26
Herpes zoster		14		14								88
Impetigo		11		11								62
Lichen		6		4	2							43
Onychia		8		8								46
Paronychia	2	62	5	66	3							661
Pemphigus		9	1	10								149
Prurigo		1		1								5
Psoriasis		5	1	3	2	1						89
Ulcus	4	165	18	150	31	1			1		4	2,439
Unguis involutus	1	41	8	36	8						1	280
Urticaria		16		15	1							47
Verruca		7		6	1							38
Other diseases of this class		18	1	14	3	2						240

TABLE X.—*Force afloat—Detailed statement, 1903*—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus.												
Adenitis inguinalis (venereal)	14	655	58	540	162						20	10,548
Arthritis gonorrhoica	5	107	20	52	75					1	4	1,358
Balanitis	1	29		29	1							136
Calculus		1		1								4
Chancroid	10	323	17	293	52						5	3,211
Cystitis	5	55	5	38	25	1					1	662
Enuresis		38	3	14	19	8						214
Epididymitis	6	292	27	284	32						9	3,253
Fistula urinalis		4	1		5							34
Gonorrhœa	16	820	27	778	72	1					12	3,915
Hæmaturia		3		1	2							17
Hydrocele		13	1	6	7	1						72
Nephritis acuta		13		7	6							67
Nephritis chronica	1	15	4	6	12	2						192
Nephrolithiasis		10		6	4							37
Ophthalmia gonorrhoica		4	1		4	1						34
Orchitis	5	314	24	281	50	1					11	3,494
Paraphimosis		21	1	19	3							183
Phimosis	4	84	1	68	19						2	897
Prostatitis		14		12	2							101
Pyelitis		1	1		2							20
Spermatorrhœa		20	14	7	22	4					1	275
Syphilis consecutiva	12	582	116	356	274	20					10	5,198
Syphilis primitiva		65	5	48	17	2					3	542
Urethræ strictura	1	32	4	21	16							226
Urethritis simplex		2		2								4
Urina suppressa	1	2		1	1						1	25
Urinæ retentio		7		7								54
Varicocele		64	5	16	46	7						491
Verruca acuminata		13	1	11	3							219
Other diseases of this class		8		7		1						162
CLASS XII.												
Cysts and new growths.												
Adenoma		1			1							2
Carcinoma		3	1		4							36
Chondroma		4		1	3							10
Cystis		17		13	4							128
Epithelioma		1			1							0
Fibroma		5	1	2	4							23
Lipoma		5		3	2							16
Neuroma		1				1						11
Osteoma		6		3	2	1						36
Other diseases of this class		1	1		2							7
CLASS XIII.												
Injuries.												
Abrasio	1	63	1	64							1	393
Ambustio ex calore	10	181	4	162	21					7	5	1,698
Ambustio ex frigore		2		2								12
Asphyxia ex submersione		16								16		15
Concussio		34	2	21	14						1	215
Contusio	20	647	13	642	25						13	4,341
Deformitas	2	47	7	14	15	26					1	615
Fames		2		2								5
Fractura	11	239	15	168	82	3				3	9	4,115
Hernia	4	156	36	34	153	5			1		3	1,384
Ictus electricus		1			1							1
Luxatio	1	54	7	47	12	1				1	1	673
Membranæ tympani ruptio		6	1	6	1							14
Membri clades		4		2	2							36
Musculi ruptio		1	1		2							14
Visceris ruptio		4	1	3	2							79
Sole excoctus	1	16		17								69

TABLE X.—*Force afloat—Detailed statement, 1903*—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XIII—continued.												
Injuries—Continued.												
Stremma	12	511	15	504	25	....	....	....	....	....	9	3,508
Virium defectio	......	3	....	3	......	....	....	....	....	....	....	32
Vulnus contusum	9	242	5	243	8	....	....	....	....	....	5	2,197
Vulnus incisum	3	180	3	175	6	2	....	....	....	1	2	1,540
Vulnus laceratum	9	334	5	315	18	....	....	....	....	3	12	3,589
Vulnus punctum	1	105	2	101	7	....	....	....	....	....	....	690
Vulnus sclopeticum	1	49	2	37	9	....	....	....	....	4	2	425
Other diseases of this class	......	5	....	4	1	....	....	....	....	....	....	56
CLASS XIV.												
Extraneous bodies.												
Corpus extraneum	......	12	1	13	......	....	....	....	....	....	....	102
CLASS XV.												
Poisons.												
Alcoholismus	3	159	10	154	17	....	....	....	....	....	1	456
Dermatitis venenata	......	27	1	27	1	....	....	....	....	....	....	237
Venenum irritans	......	22	3	23	2	....	....	....	....	....	....	290
Venenum neuroticum	......	16	2	7	5	6	....	....	....	....	....	100
Vulnus venenatum	2	53	1	52	4	....	....	....	....	....	....	680
Other diseases of this class	......	3	....	1	2	....	....	....	....	....	....	12
CLASS XVI.												
Feigned diseases.												
Catarrhus nasalis	......	1	....	1	......	....	....	....	....	....	....	1
Dysenteria chronicus	......	1	1	2	......	....	....	....	....	....	....	4
Hydrops	......	1	....	....	1	....	....	....	....	....	....	1
Rheumatismus art. ch	......	1	....	1	......	....	....	....	....	....	....	1
Sciatica	......	1	....	1	......	....	....	....	....	....	....	2
Total	407	20,367	1,421	16,585	4,835	305	11	6	4	72	377	142,580

TABLE XI—*Navy-yards, marine barracks, and other shore stations—General aggregate, 1903.*

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharge to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I.												
Parasites and parasitic diseases	......	241	12	166	75	1	....	....	....	....	11	3,090
Class II.												
General infectious diseases (non-venereal)	39	2,274	314	1,663	917	8	10	....	....	11	18	14,878
Class III.												
Constitutional disorders of nutrition	......	49	3	26	25	1	....	....	....	....	....	471
Class IV.												
Diseases of the nervous system	7	284	21	191	85	19	3	1	1	2	10	1,808
Class V.												
Diseases of the visual apparatus	......	109	13	67	35	14	2	....	1	....	3	1,183
Class VI.												
Diseases of the auditory apparatus	3	136	23	72	62	24	1	....	1	....	2	980
Class VII.												
Diseases of the olfactory apparatus	......	16	2	14	3	1	....	....	....	....	....	85
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	10	1,188	48	984	248	13	2	....	2	2	45	4,883
Subsidiary class 2—Diseases of the circulatory apparatus	2	91	3	36	46	12	4	....	....	3	....	751
Subsidiary class 3—Diseases of the respiratory apparatus	2	551	36	285	288	9	....	....	....	....	7	2,356
Class IX.												
Diseases of the motory apparatus	3	136	18	113	32	1	....	....	....	....	6	991
Class X.												
Diseases of the cutaneous apparatus	6	410	29	360	73	1	1	....	....	....	10	3,924
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	26	805	102	558	331	25	1	....	....	2	21	9,536
Class XII.												
Cysts and new growths	......	13	3	6	10	....	....	....	....	....	....	33
Class XIII.												
Injuries	18	642	33	509	126	33	....	....	....	13	12	5,630
Class XIV.												
Extraneous bodies	......	2	....	1	1	....	....	....	....	....	....	1
Class XV.												
Poisons	......	129	8	108	27	3	....	....	....	....	4	649
Class XVI.												
Feigned diseases	......	2	....	1	....	1	....	....	....	....	....	19
Total	116	7,078	668	5,100	2,384	166	24	1	5	33	149	51,268

TABLE XII.—*Navy-yards, marine barracks, and other shore stations—Detailed statement, 1903.*

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS I.												
Parasites and parasitic diseases.												
Ascaris lumbricoides		1		1								48
Pediculus		1		1								3
Pulex penetrans		1		1								5
Scabies		218	12	150	70						10	2,919
Tænia		8		2	1							5
Tinea trichophytina		16		11	4						1	109
Other diseases of this class		1				1						1
CLASS II.												
General infectious diseases (non-venereal).												
Cachexia malarialis	1	24	2	18	14							296
Catarrhus epidemicus	1	271	6	255	22						1	1,014
Cholera morbus		5		4	1							31
Denguis	1	270	4	273	2							1,388
Diphtheria		282	36	43	275							953
Dysenteria acuta	4	42	2	33	12					3		524
Dysenteria chronica	4	84	7	19	23	1				1	1	423
Erysipelas		5		4	1							58
Febris enterica	4	81	4	10	19		7			3		790
Febris intermittens	1	335	158	418	72		1				3	2,453
Febris pneumonica	1	100	2	18	83					2		428
Febris recurrens		1		1								13
Febris remittens	15	160	85	177	80						3	1,082
Morbilli		90	2	52	40							550
Neuritis endemica		4			4							3
Parotitis epidemica		301	28	135	188		1				5	1,824
Rheumatismus articularis acutus	3	91	16	68	41	1						952
Rheumatismus articularis chronicus		23	5	18	8	1					1	243
Rubella		47		18	29							151
Scarlatina		2			2							1
Tuberculosis miliaris acuta		4		1	3							26
Tuberculosis pneumonica acuta		11	1	1	11							182
Tuberculosis pneumonica chronica	1	31	5	6	23	5	1			2		399
Tuberculosis *of other parts*		1			1							
Vaccina		85		73	8						4	444
Varicella		5	1	2	4							44
Variola	3	16		18	1							594
Other diseases of this class		3		3								12
CLASS III.												
Constitutional disorders of nutrition.												
Anæmia		36	2	15	23							325
Debilitas senilis		2		1	1							11
Diabetes mellitus		2		1	1							4
Lithæmia		4	1	5								40
Other diseases of this class		5		4		1						91
CLASS IV.												
Diseases of the nervous system.												
Apoplexia		7			4	1				1	1	24
Atrophia muscularis progressiva		1		1								1
Cephalalgia		30		28	1		1					74
Chorea		1			1							
Dementia		11	2	3	8	2						91
Encephalitis		1			1							10
Epilepsia	1	30	5	7	16	10			1		2	295
Febris continua simplex	1	65	1	47	17		1				2	286

TABLE XII.—*Navy-yards, marine barracks, and other shore stations—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IV—continued.												
Diseases of the nervous system—Continued.												
Febris ephemera	1	11		12								31
Febris thermica		3		3								7
Hemicrania		1			1							
Hemiplegia		3			2						1	204
Insomnia		3		3								12
Irritatio spinalis		2			2							
Mania		3			2			1				7
Melancholia		8	3	4	6	1						71
Myelitis			1		1							4
Nausea marina		1		1								2
Neuralgia	1	28		24	4	1						161
Neurasthenia	1	19	1	10	7		1				3	116
Neuritis	1	10	1	9	3							97
Neuritis multiplex		1			1							6
Neurosis hysteroidea	1	3		4								9
Paranoia		1			1							
Paraplegia		1		1								9
Prostratio thermica		2		1						1		3
Sciatica		3		3								49
Syncope		13	1	12	2							21
Torticollis spasmodica		1		1								4
Vertigo		10	1	10	1							32
Other diseases of this class		11	5	7	4	4					1	182
CLASS V.												
Diseases of the visual apparatus.												
Amaurosis		2	1		2	1						65
Amblyopia		5	1	3		2	1					121
Asthenopia		3		2		1						114
Astigmatismus		8	2	3	4	3						46
Blepharitis		1		1								8
Choroiditis		1			1							1
Conjunctivitis		46	3	35	11	1			1		1	390
Corneæ ulcus		2		1	1							37
Ectropium		1	1		2							
Glaucoma		1	1		1	1						20
Hordeolus		1		1								2
Hypermetropia		3	1	1	1	1					1	53
Iritis		7		4	3							149
Keratitis		2	1	2	1							11
Leucoma		2	1	1	1						1	57
Myopia		11	1	5	3	4						18
Neuritis optica		1		1								7
Pterygium		1		1								26
Retinitis		1			1							1
Sclerotitis		1			1							31
Synechia		1			1							
Trachoma		1		1								4
Other diseases of this class		7		5	1		1					22
CLASS VI.												
Diseases of the auditory apparatus.												
Otalgia		5		5								46
Otitis externa		15	1	10	6							63
Otitis media	3	96	18	45	47	21	1				2	689
Surditas		18	3	10	7	3			1			164
Other diseases of this class		3	1	2	2							18
CLASS VII.												
Diseases of the olfactory apparatus.												
Antri abscessus		1			1							
Catarrhus æstivus		2		2								6
Rhinitis acuta		10		10								24
Rhinitis chronica		3	2	2	2	1						5

TABLE XII.—*Navy-yards, marine barracks, and other shore stations—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS.												
Subsidiary class 1.—Diseases of the digestive apparatus.												
Ani prolapsio		1			1							13
Ani rhagades		4	1	2	3							37
Appendicitis	3	25	4	9	22	1						208
Catarrhus gastricus acutus		96		89	7							276
Catarrhus gartricus chronicus		8	4	6	4		1				1	116
Catarrhus intestinalis acutus	1	36	3	33	7							253
Catarrhus intestinalis chronicus		11	5	3	12		1					107
Cholelithiasis		3		1	1						1	14
Colica		65	1	59	7							145
Constipatio		36		35	1							87
Dentis caries		13		4	1	8						32
Diarrhea simplex	1	207	12	211	9							702
Dyspepsia nervosa		2		2								23
Fistula in ano		7	4	7	4							157
Gastralgia		2	1	1	2							3
Glossitis		1		1								5
Hemorrhoids		34	1	16	16	3						255
Hepatis congestio		7		4	2						1	58
Hepatitis acuta		2		1	1							5
Hepatitis chronica		1		1								39
Hepatitis suppurativa		1								1		16
Hypertrophia tonsillaris		2		1	1							1
Icterus		11	1	7	3				1		1	181
Obstructio intestinalis		2	1		2					1		58
Odontalgia		7	1	8								28
Parulis		2	1	2	1							8
Periodontitis		3		2	1							4
Periproctitis		1		1								22
Pharyngitis		39		32	6						1	122
Stomatitis		3		2	1							20
Tonsillitis	5	546	6	387	129				1		40	1,772
Typhlitis		2		2								17
Ulcus gastricum		2		2								39
Other diseases of this class		6	2	8	4	1						65
Subsidiary class 2.—Diseases of the circulatory apparatus.												
A—Blood vessels:												
Aneurysma		2			1					1		1
Angina pectoris		3		2			1					59
Arteriosclerosis	1	1					2					79
Cordis dilatatio		2		1		1						29
Cordis palpitatio		14	3	9	6	2						112
Cordis valvularum morbus		35	4	10	18	9	1			1		226
Endocarditis		3		1	1					1		29
Phlebitis	1	3		2	2							14
Varix		5		1	4							6
B—Lymphatics:												
Bronchocele		1			1							6
Lymphadenitis		17	1	7	11							154
Lymphangitis		2			2							2
Splenypertrophia		1		1								7
Other diseases of this class		2		2								27
Subsidiary class 3.—Diseases of the respiratory apparatus.												
Asthma		9	3	9	2	1						78
Bronchopneumonitis		90	12	8	93	1						114
Bronchitis acuta		155	1	108	45	1					2	852
Bronchitis chronica	1	28	7	11	22	3						229
Catarrhus bronchialis		179	6	115	66	1					3	697
Hemoptysis		6		4	2							33
Laryngitis acuta		12	2	11	3							49
Laryngitis chronica		3			3							5

TABLE XII.—*Navy-yards, marine barracks, and other shore stations—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS—continued.												
Subsidiary class 3.—Diseases of the respiratory apparatus—Continued.												
Pleuritis acuta	1	65	3	17	50						2	249
Pleuritis chronica		4		2	2							48
Pleuritis purulenta			2			2						2
CLASS IX.												
Diseases of the motory apparatus.												
Ankylosis		8		1	2							24
Arthritis		8	1	4	5							29
Arthritis deformans		1									1	52
Bursitis		6		5	1							55
Caries		1			1							
Contractura		1				1						9
Gangrena	1			1								5
Myalgia acuta		91	8	88	7						4	661
Myalgia chronica	1	7	2	4	6							65
Necrosis		1			1							
Periostitis		5	1	2	4							10
Synovitis	1	11	1	7	5						1	77
Thecitis		1		1								4
CLASS X.												
Diseases of the cutaneous apparatus.												
Abscessus	3	158	12	136	31		1				5	1,622
Acne		3		2	1							15
Carbunculus	1	12	1	10	3						1	208
Cellulitis	1	18		13	6							72
Clavus		6	2	6	2							65
Ecthyma		2			2							
Eczema		31	3	25	7	1					1	415
Erythema		12		10	2							85
Furunculus	1	87	8	93	3							725
Herpes simplex		2		1	1							7
Herpes zoster		6		6								184
Impetigo		1			1							
Lichen		3		3								44
Onychia		2		1	1							5
Paronychia		3		3								85
Pityriasis		1			1							
Psoriasis		1			1							
Ulcus		32	2	22	9						3	308
Unguis involutus		23	1	22	2							205
Urticaria		2		2								5
Verruca		1		1								1
Other diseases of this class		4		4								23
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus.												
Adenitis inguinalis (venereal)	8	131	23	106	54						2	2,449
Arthritis gonorrhoica	2	20	3	14	10						1	301
Balanitis		2			2							2
Calculus		2		1	1							2
Chancroid	2	71	6	45	30						4	837
Cystitis		10	4	8	6							149
Enuresis		22	2	6	5	12					1	327
Epididymitis	2	53	6	42	18						1	507
Fistula urinalis		1			1							
Gonorrhœa	2	184	21	143	58						6	1,663
Hydrocele		5		1	3	1						12
Nephritis acuta		9		3	5						1	92
Nephritis chronica		6		1	3					2		4
Ophthalmia gonorrhoica		5			5							10

TABLE XII.—*Navy-yards, marine barracks, and other shore stations—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XI—continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Orchitis	1	65	5	46	24						1	715
Paraphimosis		2		1	1							22
Phimosis	1	27		19	8						1	218
Prostatitis		3		2	1							25
Syphilis consecutiva	2	117	27	76	61	6	1				2	1,478
Syphilis primitiva	2	19		12	9							149
Urethræ strictura	2	10	1	4	8						1	32
Urinæ retentio		1			1							1
Varicocele	2	26	3	8	18	5						304
Verruca acuminata		6		5	1							27
Other diseases of this class		8	1	5	3	1						210
CLASS XII.												
Cysts and new growths.												
Adenoma		3	1	2	2							26
Chondroma		1			1							
Cystis		6	2	3	5							17
Fibroma		2			2							1
Other diseases of this class		1		1								39
CLASS XIII.												
Injuries.												
Abrasio		18		17							1	117
Ambustio ex calore	1	18	4	18	1					4		141
Ambustio ex frigore		2		1	1							2
Asphyxia ex submersione		5								5		5
Concussio		12		9	1					1	1	44
Contusio	3	109	1	99	14							627
Deformitas	3	48	7	37	8	12					1	690
Fames		5			4	1						38
Fractura	6	66	4	45	20	5				2	4	1,242
Hernia		42	7	10	32	6					1	141
Ictus electricus		1			1							
Luxatio		15	1	12	4							157
Membranæ tympani ruptio		1				1						84
Musculi ruptio		1		1								8
Sole excoctus		1		1								6
Stremma	4	144	5	129	22	1					1	1,105
Virium defectio		2				2						2
Vulnus contusum		34		29	3	2						291
Vulnus incisum	1	41		35	4	1					2	357
Vulnus laceratum		52	1	45	7						1	446
Vulnus punctum		16	1	15	2							88
Vulnus sclopeticum		8	1	4	2	2				1		61
Other diseases of this class		1	1	2								33
CLASS XIV.												
Extraneous bodies.												
Corpus extraneum		2		1	1							1
CLASS XV.												
Poisons.												
Alcoholismus		81	7	65	21	1					1	345
Dermatitis venenata		11		7	3						1	45
Venenum irritans		1		1								1
Venenum neuroticum		24	1	20	2	2					1	116
Vulnus venenatum		12		10	1						1	142
CLASS XVI.												
Feigned diseases.												
Epilepsia		1		1								1
Nostalgia		1				1						18
Total	116	7,078	668	5,100	2,384	166	24	1	5	33	149	51,268

TABLE XIII.—*Naval hospitals—General aggregate, 1903.*

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	22	10	415	408	....	1	....	....	3	....	35	9,126
Class II.												
General infectious diseases (non-venereal)	157	538	2,134	2,357	136	147	14	....	14	51	110	81,500
Class III.												
Constitutional disorders of nutrition	3	8	65	46	5	15	2	....	....	....	8	2,347
Class IV.												
Diseases of the nervous system	27	60	344	183	26	132	22	34	4	11	19	12,381
Class V.												
Diseases of the visual apparatus	12	24	131	83	8	59	2	....	1	....	14	5,381
Class VI.												
Diseases of the auditory apparatus	18	31	121	71	13	71	....	....	1	....	14	4,953
Class VII.												
Diseases of the olfactory apparatus	2	2	12	9	....	6	....	....	....	....	1	355
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	34	63	861	841	8	36	12	....	4	2	55	21,910
Subsidiary class 2—Diseases of the circulatory apparatus	17	22	161	78	5	87	2	....	2	8	18	7,554
Subsidiary class 3—Diseases of the respiratory apparatus	59	62	491	492	22	59	3	....	2	2	32	17,139
Class IX.												
Diseases of the motory apparatus	17	17	128	103	5	39	....	....	1	1	13	6,138
Class X.												
Diseases of the cutaneous apparatus	26	32	217	219	3	17	1	....	2	2	31	10,339
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	189	194	1,227	1,130	24	242	5	....	24	2	183	69,390
Class XII.												
Cysts and new growths	1	3	34	27	2	4	....	....	....	....	5	1,337
Class XIII.												
Injuries	49	47	490	388	18	105	5	....	8	7	55	25,481
Class XIV.												
Extraneous bodies	....	....	1	1	....	....	....	....	....	....	....	13
Class XV.												
Poisons	1	10	58	52	....	9	....	....	....	3	5	1,288
Class XVI.												
Feigned diseases	....	1	1	2	....	....	....	....	....	....	....	16
Total	634	1,124	6,891	6,490	275	1,029	68	34	66	89	598	276,648

TABLE XIV.—*Naval hospitals—Detailed statement, 1903.*

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS I.												
Parasites and parasitic diseases.												
Filaria sanguinis			1			1						14
Pediculus		1	4	5								31
Scabies	20	7	245	244					3		25	4,859
Tænia	2	1	148	141							10	3,747
Tinea favosa			3	3								63
Tinea trichophytina			14	14								397
Trichinosis		1		1								15
CLASS II.												
General infectious diseases (non-venereal).												
Cachexia malarialis	18	5	20	35	2	1	1				4	1,740
Catarrhus epidemicus	2	2	127	126		1	1		1		2	2,890
Denguis			13	13								306
Diphtheria	6	217	382	589		2			1	2	11	19,122
Dysenteria acuta	8	1	20	23		1						611
Dysenteria chronica	9	1	31	19	5	10			3		4	1,719
Erysipelas	1	5	6	9							3	204
Febris cerebro-spinalis		8	20	11		9				8		975
Febris enterica	10	46	97	114	1	5	5		1	15	12	6,202
Febris intermittens	4	12	78	88	1	1			1		3	1,886
Febris pneumonica	19	64	211	253		7	1		1	16	16	9,988
Febris remittens	14	10	80	100	1				1		2	2,568
Morbilli	8	20	169	195		1					1	4,033
Neuritis endemica	22	17	162	181	20							3,413
Parotitis epidemica	3	23	309	334							1	5,553
Rheumatismus articularis acutus	7	8	109	88	4	21			1		10	5,176
Rheumatismus articularis chronicus	10	15	60	49	6	22	1				7	3,256
Rubella		5	33	35					2		1	583
Scarlatina		2	14	15						1		555
Septicæmia			1	1								91
Tetanus		1								1		1
Tuberculosis miliaris acuta			1		1							44
Tuberculosis pneumonica acuta	5	6	22	5	15	7				1	5	1,047
Tuberculosis pneumonica chronica	12	64	140	43	78	57	4		1	7	26	7,986
Tuberculosis *of other parts*	2	2	5	4	1	2	1				1	496
Vaccina		1	8	7	1						1	148
Varicella		1	10	10					1			286
Variola	2	1	6	9								548
Other diseases of this class		1		1								73
CLASS III.												
Constitutional disorders of nutrition.												
Anæmia	1	3	52	36	5	6	2				7	1,884
Diabetes insipidus		1	3	1		8						129
Diabetes mellitus	1	1	5	4		3						156
Lithæmia			1	1								11
Purpura hæmorrhagica	1	1				2						29
Purpura simplex			2	2								74
Other diseases of this class		2	2	2		1					1	64
CLASS IV.												
Diseases of the nervous system.												
Apoplexia		1	6	1						5	1	175
Aphasia			2	2								33
Atrophia muscularis progressiva			1				1					20
Cephalalgia		1	6	5		2						94

TABLE XIV.—*Naval hospitals—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To hospital for insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IV—continued.												
Diseases of the nervous system—Continued.												
Chorea		2	5	2	1	4						96
Dementia	6	3	40	11	4	12		15	2		5	1,048
Epilepsia	2	12	52	16	2	45			2	1		1,690
Febris continua simplex		3	16	19								344
Febris ephemera	2	1	9	11							1	162
Febris thermica			6	6								57
Hemicrania			1	1								33
Hemiplegia	3	3	11	5	1	7	1			1	2	1,011
Insomnia			2	2								27
Irritatio spinalis			3	1		2						66
Mania		1	6	2				5				121
Melancholia	2	3	38	9	2	14	1	12		1	4	1,009
Meningitis		1	3		1		1			2		66
Monoplegia			6	5		1						98
Myelitis			1			1						51
Nausea marina	1		6	2		5						191
Neuralgia		3	15	12	1	5						828
Neurasthenia	5	10	46	24	6	13	16				2	1,726
Neuritis	1	2	16	10	2	7						888
Neuritis multiplex			3	2		1						209
Neurosis hysteroidea			5	1		4						317
Paranoia	1		6	2	1	2		2				251
Paraplegia		1								1		87
Prostratio thermica	1		1	2								12
Sciatica	3	2	16	15	3	2					1	1,018
Sclerosis spinalis posterior		5	3	2	2		2				2	157
Syncope		1	4	4		1						82
Torticollis spasmodica		1		1								32
Vertigo		1	8	8		1						306
Other diseases of this class		3	1			3					1	84
CLASS V.												
Diseases of the visual apparatus.												
Amaurosis	2		6	2		5					1	267
Amblyopia	1	1	8	6	1	2			1			409
Asthenopia	1	1	4	3		3						242
Astigmatismus		7	9	3		11	1				1	395
Cataracta			1		1							6
Chalazion	2	1	1	1		3						290
Choroiditis		1	1			2						72
Conjunctivitis	4	2	31	30		5					2	1,090
Corneæ ulcus			1								1	39
Dacryocystitis			1			1						33
Ectropium			2	2								45
Glaucoma			2	1		1						33
Hypermetropia			2	2								7
Iritis	1	2	12	11	2	1	1					702
Keratitis		1	8	1	2	4					2	265
Leucoma			6	1	1	2					2	239
Myopia		8	10	6		6					1	268
Neuritis optica	1	8	2			5					1	81
Panophthalmitis			1			1						21
Pterygium			11	7		2					2	436
Retinitis		1	7	5	1	1					1	387
Synechia			2	2								31
Other diseases of this class		1	3			4						83
CLASS VI.												
Diseases of the auditory apparatus.												
Otalgia			1	1								4
Otitis externa	1	5	5	7		3					1	394
Otitis media	16	21	100	58	12	53			1		13	3,862
Surditas	1	4	12	2	1	14						530
Other diseases of this class		1	3	3		1						163

TABLE XIV.—*Naval hospitals—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	On leave.	To hospital for insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS VII.												
Diseases of the olfactory apparatus.												
Antri abscessus	.....	....	1	1	.....	.....	.....	.....	.....	.....	.....	16
Rhinitis acuta	.....	....	1	1	.....	.....	.....	.....	.....	.....	.....	5
Rhinitis chronica	2	2	10	7	.....	6	.....	.....	.....	.....	1	334
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS.												
Subsidiary class 1.—Diseases of the digestive apparatus.												
Ani prolapsio	.....	1	4	3	.....	.....	.....	.....	.....	.....	2	66
Ani rhagades	.....	....	2	2	.....	.....	.....	.....	.....	.....	.....	22
Appendicitis	11	8	80	77	1	7	2	.....	.....	2	10	4,157
Catarrhus gastricus acutus	.....	1	16	14	.....	2	.....	.....	.....	.....	1	366
Catarrhus gastricus chronicus	2	6	23	12	3	7	6	.....	.....	.....	3	982
Catarrhus intestinalis acutus	1	....	10	10	1	.....	.....	.....	.....	.....	.....	319
Catarrhus intestinalis chronicus	3	2	18	12	1	3	2	.....	.....	.....	5	335
Cholelithiasis	1	....	1	2	.....	.....	.....	.....	.....	.....	.....	39
Colica	.....	2	10	12	.....	.....	.....	.....	.....	.....	.....	138
Constipatio	1	1	2	3	.....	.....	.....	.....	.....	.....	1	108
Dentis caries	.....	....	2	....	.....	2	.....	.....	.....	.....	.....	78
Diarrhœa simplex	.....	....	10	9	1	.....	.....	.....	.....	.....	.....	144
Dyspepsia nervosa	1	....	4	2	1	2	.....	.....	.....	.....	.....	174
Fistula in ano	1	1	23	19	.....	.....	.....	.....	2	.....	4	1,150
Gastralgia	.....	....	2	1	.....	.....	.....	.....	.....	.....	1	42
Hæmorrhois	7	1	101	94	.....	7	1	.....	.....	.....	7	3,325
Hepatis congestio	.....	....	3	3	.....	.....	.....	.....	.....	.....	.....	57
Hepatitis acuta	.....	....	1	....	.....	.....	.....	.....	.....	.....	1	2
Hepatitis chronica	.....	1	1	1	.....	1	.....	.....	.....	.....	.....	96
Hepatitis suppurativa	.....	....	1	1	.....	.....	.....	.....	.....	.....	.....	16
Hypertrophia tonsillaris	.....	....	8	7	.....	1	.....	.....	.....	.....	.....	179
Icterus	.....	....	16	15	.....	.....	.....	.....	.....	.....	1	430
Obstructio intestinalis	.....	....	2	1	.....	.....	1	.....	.....	.....	.....	86
Parulis	.....	....	1	1	.....	.....	.....	.....	.....	.....	.....	9
Periodontitis	.....	....	2	2	.....	.....	.....	.....	.....	.....	.....	23
Periproctitis	.....	1	....	1	.....	.....	.....	.....	.....	.....	.....	64
Peritonitis	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	149
Pharyngitis	.....	1	88	87	.....	1	.....	.....	.....	.....	1	1,994
Stomatitis	.....	1	5	5	.....	.....	.....	.....	.....	.....	1	70
Tonsillitis	4	33	413	431	.....	.....	.....	.....	2	.....	17	6,276
Typhlitis	.....	....	1	....	.....	1	.....	.....	.....	.....	.....	20
Ulcus gastricum	.....	....	2	2	.....	.....	.....	.....	.....	.....	.....	31
Other diseases of this class	2	2	8	10	.....	2	.....	.....	.....	.....	.....	523
Subsidiary class 2.—Diseases of the circulatory apparatus.												
A—Blood vessels:												
Aneurysma	.....	....	5	1	1	.....	.....	.....	.....	1	2	95
Angina pectoris	.....	....	3	1	.....	1	.....	.....	.....	.....	1	164
Cordis hypertrophia	.....	....	2	2	.....	.....	.....	.....	.....	.....	.....	91
Cordis palpitatio	5	3	40	13	1	29	.....	.....	2	.....	3	1,306
Cordis valvularum morbus	4	14	36	8	1	38	2	.....	.....	3	2	1,766
Embolismus	.....	....	1	....	.....	.....	.....	.....	.....	1	.....	1
Endocarditis	.....	2	3	2	.....	2	.....	.....	.....	1	.....	180
Myocarditis	.....	....	2	....	.....	1	.....	.....	.....	1	.....	139
Pericarditis	.....	....	2	....	.....	1	.....	.....	.....	1	.....	72
Phlebitis	.....	2	4	1	.....	4	.....	.....	.....	.....	1	274
Varix	2	1	18	12	1	7	.....	.....	.....	.....	1	1,406
B—Lymphatics:												
Bronchocele	.....	....	1	....	.....	.....	.....	.....	.....	.....	1	8
Lymphadenitis	6	....	38	34	1	4	.....	.....	.....	.....	5	1,818
Lymphangitis	.....	....	4	3	.....	.....	.....	.....	.....	.....	1	78
Other diseases of this class	.....	....	2	1	.....	.....	.....	.....	.....	.....	1	161

TABLE XIV.—*Naval hospitals—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS—continued.												
Subsidiary class 3.—Diseases of the respiratory apparatus.												
Asthma	1	4	15	12		8						544
Bronchopneumonitis	35	8	112	140	11						4	4,125
Bronchitis acuta	2	8	88	84	4	4	2				4	2,540
Bronchitis chronica	10	30	62	50	4	35			2	2	9	3,321
Catarrhus bronchialis	4	1	87	85							7	1,826
Hæmoptysis	1		12	9	1	2	1					316
Laryngitis acuta	2		11	11		1					1	479
Laryngitis chronica	1		7	5		1					2	288
Pleuritis acuta	2	2	83	81	2						4	2,748
Pleuritis chronica	1	2	12	10		5						441
Pleuritis purulenta		6	1	3		3					1	489
Other diseases of this class		1	1	2								22
CLASS IX.												
Diseases of the motory apparatus.												
Ankylosis	1	2	5	3	1	3					1	195
Arthritis	2	3	22	14	2	10					1	1,132
Arthritis deformans			1			1						98
Bursitis	1		4	3		2						141
Caries		1	2	1						1	1	242
Contractura		1	1	1		1						144
Gangræna		1		1								59
Myalgia acuta	3		20	20	1	1					1	685
Myalgia chronica	5	5	26	25		9					2	1,197
Necrosis			7	3	1						3	258
Ostitis		1	5	3		2					1	286
Osteomyelitis	1					1						75
Periostitis	3	1	15	14		4			1			873
Synovitis		2	19	14		4					3	759
Thecitis			1	1								7
Other diseases of this class	1					1						37
CLASS X.												
Diseases of the cutaneous apparatus.												
Abscessus	6	12	80	78	1	4			2	2	11	3,662
Acne		3	6	8							1	109
Carbunculus	1	2	3	6								178
Cellulitis			17	14		1					2	667
Clavus			1								1	11
Ecthyma	1		3	4								171
Eczema	10	3	33	34		8	1				3	1,728
Erythema		1	3	4								48
Furunculus	1		6	7								172
Herpes simplex			1	1								44
Herpes zoster		1		1								4
Impetigo			1	1								36
Lichen	1		2	1		1					1	393
Onychia	1		1	2								65
Paronychia			3	3								196
Pityriasis			2	1							1	266
Psoriasis		2	2	2	1	1						197
Ulcus	4	4	40	34	1	2					11	1,867
Unguis involutus		3	12	15								496
Other diseases of this class	1	1	1	3								34
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus.												
Adenitis inguinalis (venereal)	20	11	211	204	3	7	1		3		24	12,247
Arthritis gonorrhoica	16	25	84	53	2	54			1		15	5,181

TABLE XIV.—*Naval hospitals—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XI—continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Balanitis			3	3								67
Calculus			1	1								39
Chancroid	13	2	71	69	1				1		15	3,596
Cystitis	5	6	26	25	1	7	1				3	1,469
Enuresis	4	4	25	10		22			1			838
Epididymitis	6	8	49	51		3					4	1,778
Fistula urinalis			5	4		1						248
Gonorrhœa	15	28	127	144		3			1		22	6,065
Hæmaturia			2	1							1	40
Hydrocele	2	2	11	12	1						2	578
Nephritis acuta	2		10	5		8	1				3	397
Nephritis chronica	1	9	16	12	1	7	1			2	3	922
Nephrolithiasis			4	3		1						124
Ophthalmia gonorrhoica	1	1	11	5	1	5			1		1	577
Orchitis	2	4	73	63	2	4					10	2,713
Paraphimosis	1	1	4	6								226
Phimosis	2	5	28	28		1			3		8	1,146
Prostatitis	1		3	3							1	294
Pyelitis	1	1	2	2	1	1						187
Spermatorrhœa	1					1						19
Syphilis consecutiva	84	82	336	322	7	102	1		13		57	25,006
Syphilis primitiva	6	1	24	23	2	2					4	1,739
Urethræ strictura	2	3	26	23	1	4					3	1,192
Urina suppressa			1	1								4
Urinæ retentio			1			1						34
Varicocele	4	5	66	51	1	11					12	2,485
Verruca acuminata			5	4		1						237
Other diseases of this class		1	2	2		1						47
CLASS XII.												
Cysts and new growths.												
Adenoma			3	3								125
Carcinoma			3	1	1						1	111
Chondroma			5	3	1	1						97
Cystis		1	10	9							2	369
Epithelioma			1	1								43
Fibroma			5	3		1					1	202
Lipoma	1	1	2	4								88
Osteoma			2	1		1						29
Other diseases of this class		1	3	2		1					1	273
CLASS XIII.												
Injuries.												
Ambustio ex calore		1	15	10		1			2	1	2	560
Ambustio ex frigore			1	1								9
Asphyxia ex submersione		1								1		1
Concussio		1	14	11		2				1	1	444
Contusio	1	4	33	33		1					4	1,267
Deformitas	3	5	20	11	1	15					1	908
Fractura	8	11	93	81	2	12				2	15	6,202
Hernia	25	10	178	134	11	43	5		6		14	9,730
Luxatio	2	2	15	15		4						933
Membranæ tympani ruptio			1			1						43
Membri clades	1		5		1	4					1	278
Musculi ruptio			1	1								11
Visceris ruptio			1			1						50
Stremma	3	4	46	42		8					3	1,576
Virium defectio		1	1			2						56
Vulnus contusum		3	10	9		1					3	414
Vulnus incisum	1		12	8		2				1	2	681
Vulnus laceratum		3	21	15		2					7	923
Vulnus punctum	2	1	10	8	1	3					1	517
Vulnus sclopeticum	3		11	8	2	2				1	1	838
Other diseases of this class			2	1		1						40

TABLE XIV.—*Naval hospitals—Detailed statement, 1903*—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XIV.												
Extraneous bodies.												
Corpus extraneum	......	....	1	1	.....	.....	.....	.....	.....	.....	.....	13
CLASS XV.												
Poisons.												
Alcoholismus	1	5	38	35	.....	4	.....	.....	.....	2	3	454
Dermatitis venenata	......	....	5	4	.....	1	.....	.....	.....	.....	.....	140
Venenum irritans	......	....	2	1	.....	1	.....	.....	.....	.....	.....	124
Venenum neuroticum	......	2	6	4	.....	3	.....	.....	.....	1	.....	144
Vulnus venenatum	......	3	7	8	.....	.....	.....	.....	.....	.....	2	416
CLASS XVI.												
Feigned diseases.												
Amblyopia	......	1	....	1	.....	.....	.....	.....	.....	.....	.....	7
Melancholia	......	....	1	1	.....	.....	.....	.....	.....	.....	.....	9
Total	634	1,124	6,891	6,490	275	1,029	68	34	66	89	598	276,648

TABLE XV.—*Report of vaccination in the Navy and Marine Corps for the year 1903.*[a]

Classification.	Successful.	Unsuccessful.	Per centage of success.
Class 1.—No evidence of vaccination	1,024	795	56.29
Class 2.—Evidence of previous vaccination	2,474	5,184	32.30
Class 3.—Evidence of attack of smallpox	15	67	18.41
Total	3,513	6,046	36.75

[a] Includes only cases in which results were determined; many were undetermined by reason of transfer.

TABLE XVI.—*Prevalence of special diseases and injuries in the Navy and Marine during the year 1903.*

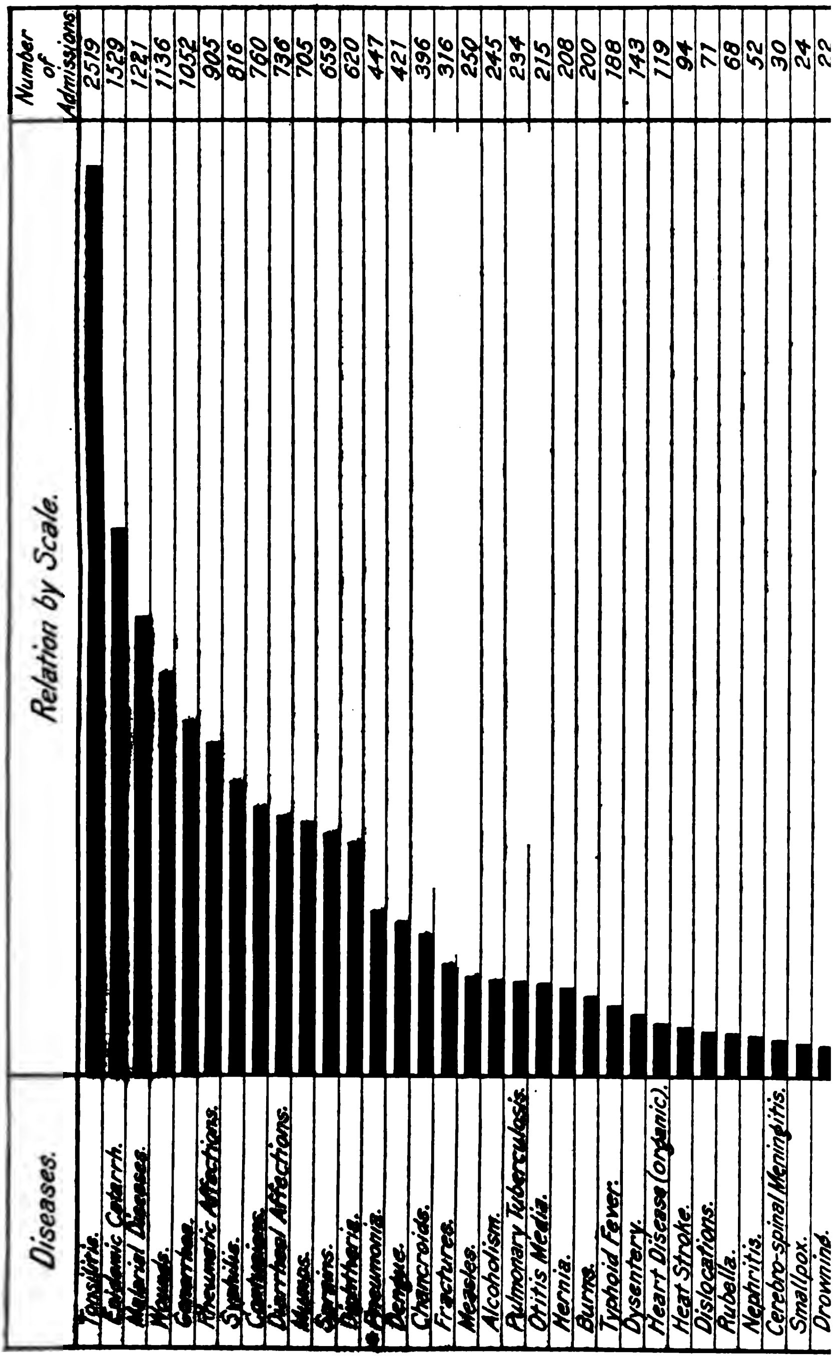
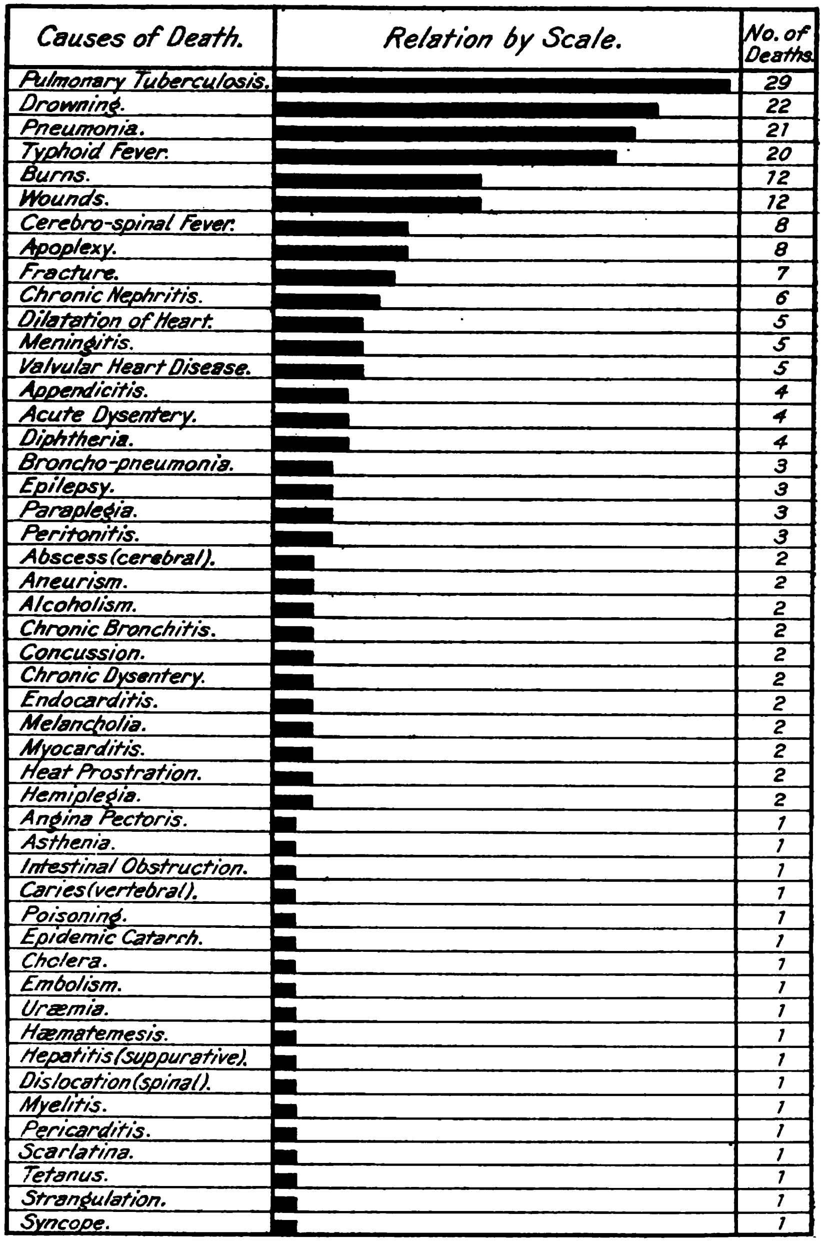


TABLE XVII.—*Mortuary record of the Navy and Marine Corps for the year 1903.*

Cause of death.	Number of deaths.					Average age.
	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.	
Abecessus	2				2	32.38
Alcoholismus	2				2	50.04
Ambustio ex calore	1	4	7		12	22.78
Aneurysma	1	1			2	34.08
Angina pectoris			1		1	21.08
Apoplexia	5	1	1	1	8	39.87
Appendicitis	2		2		4	24.77
Asphyxia ex submersione	1	5	16		22	28.11
Asthenia				1	1	41.17
Bronchitis chronica	2				2	58.79
Broncho-pneumonitis			8		8	35.00
Caries (vertebral)	1				1	33.92
Catarrhus epidemicus			1		1	17.00
Cholera			1		1	33.50
Concussio	2				2	33.54
Cordis dilatatio			5		5	46.07
Cordis valvularum morbus	3	1	1		5	48.02
Diphtheria	2		2		4	23.11
Dysenteria acuta		3	1		4	24.15
Dysenteria chronica		1		1	2	23.66
Embolismus	1				1	54.58
Endocarditis	1	1			2	15.83
Epilepsia	1		2		3	36.11
Febris cerebro spinalis	8				8	21.11
Febris enterica	14	4	2		20	24.51
Febris pneumonica	16	2	3		21	26.76
Fractura	2	2	3		7	29.42
Haematemesis				1	1	56.40
Hemiplegia	1		1		2	15.58
Hepatitis suppurativa		1			1	29.68
Luxatio (spinalis)			1		1	22.75
Melancholia	1			1	2	30.05
Meningitis	2		3		5	24.13
Myelitis			1		1	42.92
Myocarditis	1		1		2	42.05
Nephritis chronica	2	2		2	6	39.56
Obstructio intestinalis		1			1	26.50
Paraplegia	1		2		3	38.39
Pericarditis	1				1	23.83
Peritonitis			2	1	3	22.47
Prostratio thermica		1	1		2	41.91
Scarlatina	1				1	29.75
Strangulatio			1		1	20.17
Syncope			1		1	18.83
Tetanus	1				1	21.42
Tuberculosis pneumonica acuta	1				1	21.17
Tuberculosis pneumonica chronica	7	2		19	28	27.75
Uraemia				1	1	28.90
Venenum neuroticum	1				1	27.50
Vulnus incisum	1				1	25.75
Vulnus laceratum			3		3	23.61
Vulnus sclopeticum	1	1	4	2	8	29.01
Total	89	33	72	30	224	29.73

TABLE XVIII.—*Deaths in the Navy and Marine Corps during the year 1903.*

[Average strength, 37,248; total number of deaths, 224; ratio per 1,000 of strength, 6.01.]



Causes of Death.	Relation by Scale.	No. of Deaths.
Pulmonary Tuberculosis.		29
Drowning.		22
Pneumonia.		21
Typhoid Fever.		20
Burns.		12
Wounds.		12
Cerebro-spinal Fever.		8
Apoplexy.		8
Fracture.		7
Chronic Nephritis.		6
Dilatation of Heart.		5
Meningitis.		5
Valvular Heart Disease.		5
Appendicitis.		4
Acute Dysentery.		4
Diphtheria.		4
Broncho-pneumonia.		3
Epilepsy.		3
Paraplegia.		3
Peritonitis.		3
Abscess (cerebral).		2
Aneurism.		2
Alcoholism.		2
Chronic Bronchitis.		2
Concussion.		2
Chronic Dysentery.		2
Endocarditis.		2
Melancholia.		2
Myocarditis.		2
Heat Prostration.		2
Hemiplegia.		2
Angina Pectoris.		1
Asthenia.		1
Intestinal Obstruction.		1
Caries (vertebral).		1
Poisoning.		1
Epidemic Catarrh.		1
Cholera.		1
Embolism.		1
Uræmia.		1
Hæmatemesis.		1
Hepatitis (suppurative).		1
Dislocation (spinal).		1
Myelitis.		1
Pericarditis.		1
Scarlatina.		1
Tetanus.		1
Strangulation.		1
Syncope.		1

REPORTS ON NAVY-YARDS, SHORE STATIONS, AND RECEIVING SHIPS.

REPORT ON THE UNITED STATES NAVY-YARD, NEW YORK, N. Y.

By A. F. PRICE *Medical Director, U. S. Navy.*

In making the sanitary report of this yard I have to state that the health of the yard is threatened by the control, by the city of Brooklyn, of an inlet of East River and the land surrounding it, which extends for half a mile up into the city in the direction of Clinton avenue between the navy-yard wall on the eastern end of the yard and the naval hospital. The shore on the eastern side of the inlet and at its head to the south is controlled by the city, and is in use for market, manufacturing, and other purposes; and, although no sewers, excepting three for storm water, empty into this inlet, yet the water is made foul by the washings from the streets of the city thus deposited in the inlet and by the contamination incidental to the crowded human habitation of its banks and of the inlet itself by boats and lighters. The water is discolored and foul, and in spite of the swinging tide gates underneath the causeway (intended to prevent it) some contamination of Whitney basin results. This inlet is a mass of stagnant water subdivided into smaller divisions by means of piers run out into it from the eastern edge. It is freshened by no tidal flow or current, excepting what may possibly flow into it from Whitney basin underneath the causeway, through the tide gates, which were built for the purpose of affording this relief, but which are of very slight effect and moreover are placed about half way between the East River and the head of the inlet. It is evident, therefore, that as the neighborhood gets more crowded and as the inlet itself comes to be more used as a means of transport to and fro the condition of the water will become more and more foul. This is an alarming state of affairs and there seems to be no remedy. To cause a clarifying current through this foul pocket is an engineering task involving very great expense and no small difficulty.

The condition is very serious at present, and the projected slaughterhouse, now under consideration and apparently about to be built, will make the condition worse. This slaughterhouse is to be an extensive plant, and is to be built at the very head of the inlet, where it will be farthest removed from any possible change in the water by current or tide. It is intended to afford facilities for all the slaughtering for the city of Brooklyn at this place and to bring a number of cattle boats up and down this inlet to supply the slaughterhouse. It is claimed that every scientific and hygienic precaution is to be taken to protect the neighborhood and the water of the inlet, but in spite of this it remains true that on account of possible and, indeed, inevitable lapse from perfect administration of this plant and from the filth from the cattle boats this water is bound to be rendered foul by putrescent matters, which will make of the inlet a pest hole. It seems evident, therefore, that the water front selected is the worst possible one for a slaughter-house, and, justly, is strenuously objected to by the officials of the navy-yard.

There were several cases of smallpox in Brooklyn that seemed to come from a center of infection in building No. 9, which is a machine shop under the control of the Bureau of Equipment. The vaccinators of the board of health were furnished full access to the workmen in this building and also to those in the rest of the yard. The men in building No. 9 availed themselves freely of the facilities afforded them for vaccination, 280 of them submitting themselves to the operation. This was not the case, however, in the rest of the yard. The total vaccinated was 411.

The principal medical work in this yard consists in giving first aid to injured workmen.

The average daily number of workmen employed in the yard by the Government during the last year was 5,380, to which should be added about 500 contractor's men, who also come in for help. The total number of injuries and cases of temporary illness treated were 1,182, giving an average number for each working day of 3.9. Two cases of sudden death occurred in the yard, both apparently from heart failure.

The dispensary in the yard is well equipped for its work, and the yard ambulance is in good condition and efficiently managed.

The dispensary at the marine barracks has been improved by the installation of electric lights and is well equipped for its work. The sanitary condition of the barracks in general is satisfactory.

REPORT ON THE UNITED STATES NAVY-YARD, PORTSMOUTH, N. H.

By W. G. FARWELL, *Medical Director, U. S. Navy.*

The general sanitary condition of the yard is very good. There have been no deaths and no severe cases of sickness during the year. Mumps was epidemic among the children living in the yard, all recovering without any bad results.

An important addition was made during the year to the medical responsibilities of the yard by the arrival of the prison ship *Southery*. There have been nearly 200 prisoners on board and a crew of 84 men and marines. The prisoners become very pale and anæmic after being on board a few months, as the quarters below are close, badly ventilated, and crowded. This condition will be greatly improved when the prison which is in course of construction is completed.

Several cases of severe injury to workmen employed in the yard and to contractors' men were attended to, and 120 persons received first-aid treatment.

The average number of people in the yard was about 1,885.

The water supply of the yard is obtained chiefly from cisterns, supplemented by water from the mainland. The cistern water, although potable, soon has a rather unpleasant odor and flavor, no matter how often the cistern may be washed out, and the water from the mainland has the same objection and is also somewhat discolored.

The quarters for the officers are old, but substantially built and very comfortable. A new heating apparatus (hot-water) has been recently installed, which will make the houses quite warm enough. Steam is being used this year, with the result that often the houses are too warm.

The dispensary is located in a new brick building recently erected, with ample accommodation, having four rooms on the first floor, five on the second, and large storerooms in the attic. The building is effectively heated by hot water and is lighted by electricity.

Extensive improvements are going on; the new dock, 750 feet in length, is nearing completion; a large coal plant has been erected of a capacity of 10,000 tons of coal, with latest improvements for handling, and a large equipment building has just been finished with latest machinery run by electricity.

During the year the following improvements were made to the marine barracks, viz, a new steam boiler was installed which heats the barracks comfortably in the coldest weather and connection with the yard water main was made.

A hot-water boiler and tank are about to be installed for supplying hot water for bathing purposes. At present the hot water is obtained by steam. The bathing room and water-closets are in a detached building, and to reach this the men must go out into the open air for a distance of at least 50 feet. It can easily be conceived that under such conditions, especially in winter, men will not use the baths and water-closets as often as health demands. The exposure at night in winter is certainly detrimental to the comfort and health of the men.

I would respectfully suggest that this defect be remedied, either by building a covered way to the present bath and water-closet or by building water-closets for night use adjoining the main building, with a rear entrance. The covered way to the bath house should be constructed, whether or not the additional closets are built.

REPORT ON THE UNITED STATES NAVY-YARD, WASHINGTON, D. C.

By N. M. Ferebee, *Medical Director, U. S. Navy.*

There has been during the past year no change in the general sanitary condition of this yard. The objectionable features reported as existing at the barracks during the year 1902 continued during 1903.

The average number of persons, including workmen, connected with the yard has been about the same as in the previous year. The number of calls for medical attendance to families living in the yard has been somewhat larger than last year, while the number of admissions from the enlisted force has not been so large. As there are no accommodations for the sick at the yard, 98 men were sent to hospital. There was one death from accident, a marine falling from a window of the barracks, crushing his skull. Death was instantaneous.

Twelve cases of catarrhus epidemicus were under treatment during the early part of the year. There were also 30 cases due to malarial poisoning. In the majority of these last the exposure had occurred at other stations, according to the statements of the patients. One case of typhoid fever (a child, aged 10 years) developed in the family of an officer living in the yard. The infection in this case is supposed to have been carried in milk. The dairyman who supplied this family was charged with selling milk brought from a farm where typhoid fever existed. It was shown that the disease had occurred in a number of families supplied by him about the same time.

The number of workmen applying for treatment at the yard dispensary (731) was very nearly twice as large as during the year 1902, when the number was 370. In the majority of these cases some treatment was really necessary, but in a large percentage of them the injury or sickness was of such a trifling nature as to occasion surprise that the men should have taken the trouble to apply for treatment.

The number of candidates examined for enlistment was 372, of whom 177 were accepted. Three hundred and twenty minors for instruction were examined, of whom 252 were accepted. As these boys (minors under instruction) are taught their trade at the expense of the Government, and after learning it are always sure of employment by the Government, it has been judged to be to the best interest of the Government that only such as are practically sound shall be accepted. Consequently the physical examination, while not so rigid as that for candidates for enlistment, has been made fairly thorough. As several accidents have occurred to men who had epileptic attacks while at work about running machinery, it is suggested in this connection that these minors should bring with them, where practicable, a certificate to the effect that they have not had epilepsy.

Twelve applicants for renewal of pension were examined.

REPORT ON THE NAVY-YARD, MARE ISLAND, CAL.

By J. R. WAGGENER, *Medical Director, U. S. Navy.*

The yard is in excellent sanitary condition. During the summer a thorough cleaning up has been effected and outhouses and fences whitewashed. A larger water pipe has been laid to connect with the reservoir on the mainland and the water supply is now sufficient. Seven cases of sickness among officers attached to the yard are recorded in the medical journal, only one of which was of a serious nature.

In that part of the yard set apart for the residence of civil employees, a general cleaning up of the premises and whitewashing of outhouses has been ordered. The sanitary condition here also is good. Three deaths occurred during the year among the residents of this section. One was from "disease of heart," one from "disease of kidneys," and one from pneumonia.

All admissions during the year, other than the seven mentioned above, were officers and men of the marine barracks or prisoners confined in the yard. There was considerable sickness among the latter during the winter, owing to an epidemic of grippe.

The general sanitary condition of the barracks is good. The plumbing in parts of the building is defective, especially in the sick bay and dispensary. A survey has been held and new bath tubs, water-closets, and washstands ordered where necessary. These will be installed early in January. The windows of the barracks are without awnings or shutters. During the summer months this makes the sleeping quarters of men very uncomfortable. Some years ago roller shades were put up, but these are now worn out and should be replaced by new ones.

The new building for dispensary and storehouse was turned over to the medical department on the 1st of September. Stores and furnishings were transferred from the old quarters in the equipment building and these quarters restored to the equipment department.

The arrival of a year's (estimated) supply of stores from the naval laboratory at this time afforded a test of the capacity of the storehouse, showing that it is sufficient for present needs. Should, however, the amount of stores handled continue to increase in the future as it has in the past, additional storage room will be needed. The following table will show what the rate of increase has been since 1901:

Year.	Value of stores.	Increase over preceding year.	Requisitions filled.	Increase over preceding year.
1901	$12,717.54	$4,459.69	58	11
1902	19,586.34	6,868.80	76	18
1903	21,715.86	2,129.52	109	33

The dispensary, offices, and accident room have been furnished and equipped and are in a good state of efficiency.

Six hundred and eighty-four accidents (17 serious, 667 slight) were treated at the yard dispensary during the year. Death followed in two cases, one from fracture of base of skull and one from strangulated hernia.

REPORT ON THE UNITED STATES MARINE BARRACKS, WASHINGTON, D. C.

By DANIEL N. BERTOLETTE, *Medical Inspector, U. S. Navy.*

The defective sanitary conditions of the old buildings of this post, so often described in various reports, still exist. During the year one new building has been erected, in which are located the commanding officer's offices and dormitories for a portion of the enlisted force. The building is of brick, well lighted, heated by steam, and fairly well ventilated. There are water-closets and bathing facilities under the same roof.

During the winter months diseases of the throat and chest prevail. The location of the water-closets at a distance from the old dormitories is probably responsible for many of these cases. Tonsillitis is the most prevalent of these catarrhal affections.

The place utilized as a prison is in one of the old buildings and is very defective, hygienically considered, as a place of confinement for prisoners, particularly for any extended period, being dark, damp, and liable to overcrowding. Further, in policing the prisoners they have to be marched through the open air for a distance of more than one hundred yards to and from the latrines, regardless of temperature or weather.

The recruits enlisted in the Mississippi and Ohio river valleys are brought immediately to this post for uniform and initial instruction. In their examination incidental to identification and vaccination a comparatively large number are found who have physical defects which should have prevented their acceptance as recruits. In a number of instances the recruit has stated, and probably truthfully, that the examiner made only superficial examination, not even requiring the removal of the candidate's clothing.

Some of the cases are as follows, viz: Necrosis of metatarsal bone of foot, with a sinus, the result of an old injury; absence of 11 teeth, ten of them molars; chronic irreducible prolapsus ani; follicular tonsillitis with greatly enlarged tonsils; stuttering to an extent precluding the performance of duty; cryptorchid; extensive condylomata of glans penis, and marked defective vision.

REPORT ON THE NAVY-YARD, BOSTON, MASS.

By E. Z. Derr, *Medical Inspector, U. S. Navy.*

During the past year there were 213 admissions and readmissions at this yard. The average complement of officers and men, including the prisoners, was 415. There were 618 sick days, with a daily average of 1.60 and a percentage of sick of 0.40. Eighty-five cases were discharged to duty, 115 transferred to the naval hospital, Chelsea, and 12 invalided from the service on the recommendation of a board of medical survey. There were no deaths during the year. Of the 213 admissions and readmissions 59 were for diseases of venereal origin. There has been no serious epidemic in the barracks during the year. Catarrhus epidemicus prevailed to some extent during the first quarter, and five cases of mumps were admitted during the last quarter. All of these cases were transferred at once to the naval hospital, Chelsea.

The character of the recruits received has been very poor. During the past quarter it was found necessary to call a survey on 12 immediately on their arrival at this yard.

Marine barracks.—The poor ventilation and inadequate closet and bathing facilities have been pointed out time and again by the various medical officers who have been stationed here. During the past year some improvements have been made in the water-closets and bathrooms. There are now 17 water-closets and 4 shower baths, 3 enameled tubs, and 12 stationary basins. The flushing system is good, and the closets are kept in good condition. The water-closets are all on the ground floor. It is very desirable that each floor be provided with one or more closets for the accommodation of those who, by reason of sickness, find it difficult to reach closets so far removed.

The ventilation of the barracks is wholly dependent upon doors and windows. This works very well in warm weather, but is a very poor arrangement for the winter season. An artificial system of ventilation should be introduced. Gas is still used for lighting, and this should be replaced by electricity. The barracks are generally very much overcrowded. A few weeks ago there were 365 men in the building, and this allowed but 234 cubic feet for each man, about one-third of the due allowance.

The prison.—This building is kept in very good condition, and is well ventilated, heated, and lighted. There are ample closet and bathing facilities, each floor being provided with its own closets and baths.

The dispensary.—A new building, more centrally located, is badly needed. The present dispensary occupies part of an old building at the southern end of the yard, and is poorly adapted to the purpose. An ample storeroom and quarters for a pharmacist should be provided in the new building.

The number of men employed in the yard during the year averaged about 1,850. First aid was rendered to 304 cases of injury, most of them of a trival character.

The officers and their families have enjoyed good health and have received medical attention when required.

REPORT ON THE UNITED STATES NAVAL ACADEMY.

By HOWARD E. AMES, *Medical Inspector, U. S. Navy.*

Owing to the transition that is now taking place in the whole academy, my report must be fragmentary. The increased area of the academy domains and the numerous improvements clearly indicate a marked departure from the past, and demand a consideration in advance of what we will be expected to meet. The present plans will extend the distance between the points requiring the attention of the medical department of this institution, and the greatly increased number of midshipmen will imperatively demand some more concentrated method of treating cases of disease and injury than prevails at present. The continuance of three different sick calls, with incongruous sick reports in two of them, viz, "Santee" and "marine barracks," is expensive, trying, and unsatisfactory.

A large ward should be assigned in the present sick quarters for the use of the enlisted force. It can be kept completely separated from the midshipmen's section, and would secure beneficial results.

The marine barracks are admirably arranged on the whole for the shelter of the marines. The few sanitary defects can be easily remedied. Among those that have presented themselves up to the present time is the outdoor arrangement for washing clothes. The tables are in the open air without roof and the slop water runs directly upon the ground. This makes it muddy and wet, and is decidedly dangerous, as the men are exposed to the variations of the weather. A properly cemented floor, covered by a suitable roof and protected from the winds by portable canvas sides, should be built. This change has been recommended, and it will be made in the near future. The presence of a cesspool is another objectionable feature. It is unnecessary and is a nidus for mosquitoes and malodors. There is ample fall to secure a rapid movement of the waste water into the river, and the drain pipe should be made continuous and the cesspool filled up. The windows of the building should be completely fitted with mosquito netting, as the mosquitoes and flies are a constant source of danger and annoyance in the spreading of disease and disturbing the men's rest. The sanitary condition of the basement can be hygienically benefited by increasing the area of its front windows. This can be easily done, and would secure more light and freer circulation of air.

The *Santee* is old, rotten, and unfit for any service beyond that of a hulk storehouse. Though kept very clean in the ordinary sense of the word, sanitarily she is not clean, and is a constant menace to health. Necessity alone can justify her continuance as an abiding place for seamen. The enlisted force required for the academy should be sheltered by suitable barracks.

The addition of a roomy, airy waiting room, with an extra consultation room, at the Academy sick quarters, has made it possible to hold double sick call expeditiously and satisfactorily. The liberal allowance by the Bureau of the fittings for dressing tables and all other accessories has proven most beneficial and has given comfort and satisfaction, not only to the patients but to the medical officers stationed here. The granting of a cook for the kitchen by the Superintendent has been very satisfactory and added greatly to the comfort of the sick. The addition made by the building of the annex to the hospital has helped materially. One part is furnished, not in the manner that is demanded, but simply to meet temporarily the requirements of the present transitory stage. The lower ward has not yet been furnished, which has been a drawback, but this will be done shortly. There have been several occasions when we were sorely pressed for room, particularly during the outbreak of mumps, but we met the demands as best we could.

The things which we most need are the addition of a ward for seamen and marines, the full equipment of the present lower ward, and the abolishing of the marine and *Santee* sick quarters.

A number of swamps located on the academy reservation and a partially inclosed pond, should be filled up for sanitary reasons. As provisions have been made for this work, however, it need not be dwelt upon, beyond saying that it should be done as soon as possible to remedy serious sanitary defects. The reservation occupied by the marines has been extensively improved and the contemplated work will make it both attractive and beautiful. The sewers that now empty into the Severn River are to be discontinued, with one exception, when the boat basin is completed, and all sewage carried well out beyond the sea wall on the bay front of the grounds. This will prevent the settling of any sewage in the proposed basin. The sewage from the steam-engineering building, however, will be emptied into the Severn near the mouth of Cemetery Creek. This is unfortunate, as it should also be carried off with the main system, but I am told that the difference in level will prevent this important sanitary measure being carried out.

There is one source of danger that should be guarded against, and that is from the water supply. I would strongly recommend that all water used in the academy for domestic purposes be filtered. Mechanical filters can be readily and cheaply installed and, with the high pressure source now existing, will insure success. The expense of such a plant would be small compared with the security and confidence felt in a pure water supply.

Every building in the reservation should be carefully screened. The danger from the mosquito in causing and spreading malarial diseases is so fully established, and so easily prevented, that every precaution should be taken to prevent this trouble.

As far as possible, all open, fresh-water pools and puddles were filled up or drained during the past summer, but the extensive building operations and a lack of appreciation of the importance of this work, prevented that care and success we hoped for. Still some good was accomplished.

The question of pure food is such a vital one that every precaution should be taken to secure that end. The food furnished by the commissary at this institution during my duty here has been wholesome, nourishing, pure, and abundant, with sufficient variety, and well cooked and served. Few complaints have been made, and all of these on careful investigation have proved trivial. There is but one element in the food that has caused any apprehension, and that is the milk. It is the best obtainable under the present circumstances, but it is not the best that can be secured. I would advise the establishment of a dairy belonging to the institution. The annual cost of the milk for the midshipmen per year would be sufficient in three years to cover the cost of the required herd, the stabling, and complete dairy outfit. There is already sufficient ground belonging to the Government available for the purpose. Its supervision and control by the academic authorities would insure every sanitary precaution being taken and eliminate the present suspicions regarding the milk supply.

REPORT ON THE RECEIVING SHIPS FRANKLIN AND RICHMOND.

By C. T. Hibbett, *Surgeon, U. S. Navy.*

Since submitting my last annual report on the receiving ships *Franklin* and *Richmond*, a number of important changes have been made at this station pertaining to matters of sanitation. In February I recommended that the lower parts of the *Franklin*, including the engine and fire rooms, and all spaces below the orlop decks, fore and aft, be completely gutted in order to obtain free access to the bilges and sides. This work has been done in a most satisfactory manner and I have no doubt will contribute no little to better health conditions. It was observed during the breaking-out process that these spaces were swarming with mosquitoes and that the hitherto inaccessible bilge water was full of larvae. Other improvements on board the *Franklin* include enlarging the sick bay, cutting windows and doors through the sides of the berth deck space and sick bay, installing water-closets and a bathroom on-the berth deck aft for officers, and other minor structural alterations for comfort and health. I consider that the ship is now a fairly safe, and surely comfortable, place of habitation. In my opinion she is free from infection, and, with a clean hold, well ventilated decks, and heat from the outside, I see no reason to fear the development of disease from local causes. There is one matter worthy of careful attention, which is that the berth, gun, and spar decks of the *Franklin* should be shellacked once each week during the fall and winter months. This is, in my opinion, the only possible way to keep these old decks in a sanitary condition. It would also be advisable to shellac the decks of the *Richmond* and the floors of the new barracks.

The overcrowded conditions at this station have been relieved by the construction of three buildings on the reservation for temporary barracks. These buildings are plain, two-story structures, each intended to berth 300 recruits. They are heated by large, upright radiators and lighted by electricity. During the year a power house, with three large boilers, was put in operation at a convenient point on shore for heating the ships and all shore buildings. A large water-closet was established along the sea wall back of the mess hall, and, while its capacity meets all requirements, it is a menace to health on account of its location. It is only 60 feet from the kitchen and mess hall, and the water recedes beyond the droppings at low water. This attracts flies and will soon develop a most disagreeable odor. Before another summer comes this structure should be moved to a more suitable location.

The new disinfecting plant, of two compartments, one for a No. 10 Kny-Sprague disinfector and the other fitted with racks for fumigation, is in excellent condition. The disinfector and formal generator are faultless in operation.

The mess hall on St. Helena, with attached galley and pantry, was put in commission in April. The hall has a capacity of about 900 seats, which does away with the necessity for repeated tables on board the ships and lessens the danger of infection from sleeping and messing in the same compartment. This establishment should receive attention before another summer in the matter of wire screens for the doors and windows. The imperfect screens used during the past summer did not protect from flies. Wire-inclosed vestibules should be added to each entrance to the mess hall, pantry, and galley, and all doors for vestibules and buildings proper should be of the best material and type and be fitted with automatic closing springs or weights. The present single-sash window screens should be replaced by full size, close fitting, and immovable screens on the outside of glass sashes. I consider the above suggestions of great importance, and would recommend that the work be done before the fly season comes.

A much larger brig is needed for the station. Under the present arrangement many prisoners for summary court-martial are kept in confinement in a wire cage in the center of the brig building for several weeks "awaiting trial" or "awaiting a cell." There should be a much larger number of cells in order that each prisoner may begin his term of solitary confinement immediately after the promulgation of his sentence.

Owing to the appearance of diphtheria among the men last April, the landsmen for training and other young recruits were placed in tents on the reservation, and, on account of the gutting of the hold of the *Franklin*, the camp was continued through the summer and late into the autumn. Three important matters were to be considered in the maintenance of good health conditions here, viz, water supply, latrines, and mosquitoes. Fortunately the new mess hall was opened for use about that time, and, being within convenient marching distance for meals, it relieved us of the problem of messing the men in camp and simplified other questions of sanitation. Water could only be supplied in barrels. The attempt was at first made to supply both drinking and washing water, but it was soon found that the raw recruit is not a respecter of water. He was as liable to use one barrel as the other for drinking. Then, only drinking water in barrels with small bungholes and spigots was supplied, washing being done by divisions marched to the floats at the water front.

The question of latrines was fully considered, and it was decided to use the old trench system. Notwithstanding the prolonged stay in camp, which was much beyond the original expectation, and the unfavorable character of the soil for the absorption of dejecta, there was no sickness that could be attributed to the latrine. Earth and lime coverings were freely used and new trenches dug as occasion required. The question of building latrines over the adjacent estuaries was not seriously considered for the reasons that the marsh land of these estuaries is exposed at low water, and with the incoming tides drift material is lodged upon the banks or in the tall grass of the marsh. Protection from mosquitoes was sought through extermination without the use of nets. Near the camp was a fresh water pond of about one-half acre in area, and at the heads of the estuaries were a number of small streams with stagnant pools. The pond was thoroughly drained and all pools were kept coated with heavy mosquito oil, supplied at small cost by the Standard Oil Company. The *anopheles* made her presence known to a limited extent despite the above precautions. Driven by winds or in deliberate quest of food she came from the contiguous town of Berkley and infected a few men.

The number of cases of malarial fever (64) during this period was, however, small for the force in camp in this locality, and of the above number about 30 per cent gave histories of former infection.

After breaking camp and again berthing on board ship and in the one barracks then completed, there were no other cases of malarial fever. The pest-hold of the *Franklin* had been broken out and mosquitoes driven from the ship.

Early in the autumn catarrhus epidemicus invaded the station to a limited extent, and with it came a few cases of pneumonia, but the early appearance of cold weather soon brought relief. Tonsillitis (follicular) then became our most formidable foe, causing some uneasiness on account of its close clinical relations (in the early stage) to diphtheria. A close watch was kept on all cases, and on December 28 one case, which was sent to the hospital, was there diagnosed as Klebs-Loeffler infection. No further cases have appeared, and present indications do not point to a repetition of last spring's experiences with this disease. The one case referred to was without doubt due to infection while the patient was on liberty in Norfolk.

Summary of work for the year.

Number of recruits and other men received on board	5,787
Number of men examined for enlistment	438
Number accepted	295
Number of admissions and readmissions to the sick list	1,875
Number of patients sent to the hospital	514
Number of men discharged from the service upon medical survey	78
Total number of sick days	5,472

The following table gives the number of cases of infectious and contagious diseases admitted:

Tonsillitis	148
Diphtheria	52
Parotitis epidemica	6
Morbilli	46
Catarrhus epidemicus	334
Febris pneumonica	31
Febris enterica	7
Pleuritis	17
Febris intermittens and remittens	112
Dysenteria acuta	4
Venereal diseases	354
Scabies	181

I desire to bring prominently to notice the work accomplished in dentistry during the past four months on board the *Franklin*. The following work was done from September 1, 1903, to January 1, 1904:

Worthless teeth extracted	176
Teeth scaled and cleaned	186
Teeth filled with cement	143
Teeth filled with alloy	334
Teeth filled with gutta-percha stopping	43
Alveolar abscesses treated	18
Teeth devitalized and roots filled	28
Case of necrosis treated	1

I consider that the above record of four months' work at this station demonstrates the advantages to be gained to the service by establishing a corps of dental surgeons.

In concluding this report I wish to bear testimony to the improvement being made in the personnel of the Hospital Corps by systematic instruction and training in the schools established for that purpose.

REPORT ON THE UNITED STATES NAVAL TORPEDO STATION, NEWPORT, R. I.

By G. P. LUMSDEN, *Surgeon, U. S. Navy.*

The health at this station has been very good during the year 1903. Eleven cases of parotitis were transferred to hospital during the time from February 7 to July 11. One case of measles occurred in an officer who was treated at his home on the island.

The health of Newport has been fairly good, with the exception of about 10 cases of diphtheria and 6 cases of typhoid fever, monthly, for the last half of the year.

The chemical analysis of the Newport drinking water shows it to be still suspicious and undesirable for drinking purposes, but it is claimed that the bacteriological examinations have been negative. It is filtered for the use of the men in the barracks and no cases of typhoid have occurred during the year. There are now about 190 enlisted men and 8 officers at the station and on the torpedo boats.

The dispensary was removed during the year from the barracks to the first floor of a residence formerly occupied by the paymaster, near the barracks and workshops. The rooms have been fitted up for an office, dispensary, storeroom, and an operating or accident room, with two cots for emergency cases. The hospital steward resides in the second story.

There have been a number of minor accidents and wounds, but no serious cases. Several cases of asphyxiation have occurred on the submarine boats from the fumes of sulphur dioxide and gasoline, but none of a serious nature.

REPORT ON THE U. S. RECEIVING SHIP PURITAN.

By CLEMENT BIDDLE, *Surgeon, U. S. Navy.*

This report covers the period from June 2 to November 16, 1903, when the *Puritan* was placed out of commission, the officers and crew being transferred to the receiving ship *Lancaster*.

The *Minneapolis* was placed out of commission June 2, the officers and crew being transferred to the *Puritan*. About this date a camp was established on the eastern end of League Island, Pa., to which nearly all of the crew, chiefly recruits, were sent. This open-air life was adopted as there had been much sickness aboard the *Minneapolis*, due to overcrowding.

The diseases that prevailed aboard ship before the camp was established were cerebro-spinal fever, mumps, and measles. Change to camp life brought about a complete restoration to healthy conditions. There were 2 cases of cerebro-spinal fever in June, 1 in July, and the last in August. Of measles there were 7 cases, and of mumps, 2 cases, all in June.

There has been very little illness other than the above. Three cases of typhoid fever occurred, but, considering its prevalence in Philadelphia, this is insignificant. Remittent fever furnished 4 cases, scabies 23, and gonorrhoeal rheumatism 6. Smallpox has been very prevalent in Philadelphia this autumn, but no cases have appeared in the force attached to this ship. Vaccinations have been made with care.

The average complement was 622, while the daily average of sick was only 1.06.

The men occupying the tents were naturally exposed to the vicissitudes of the weather, but without harmful results. For instance, on three occasions nearly all the tents were blown down by violent gales, viz, on June 10 and September 17 and 27.

The camp tents were struck on October 8 and the occupants moved into the large mess hall, which had been provided with stoves. Three dormitory frame barracks, of two stories each, are now in course of construction. Boilers are being installed with which to heat all the barracks. About December 1 these buildings will be ready for occupancy, and will accommodate about 1,000 men. Water-closets have been put in one of the dormitory buildings, the head formerly in use, which was built over the Delaware River, having been abandoned.

A dentist attends on Monday, Wednesday, and Friday. The remuneration of the dentist, which is moderate, is arranged between the dentist and the patient before the work begins. Both the work and tariff are satisfactory. In addition to treating those attached to the *Puritan*, a great deal of work has been done for the men attached to the ships visiting the navy-yard.

The land forming League Island is practically all made land, at least where the camp operations are carried on, the island being the excavated Smith's Island that a few years ago stood between Philadelphia and Camden. The island is but a few feet above tide water, and an unusually high tide practically suspends all drainage flow. Water on the proposed site for permanent barracks is reached about 18 inches below the surface, making the site damp and unhealthy, particularly during the season when heavy rains fall and the snow is melting. To obviate this, a structure erected for barrack purposes upon this island will have to be elevated on brick or stone piers, the same to stand 5 feet above the surface of the ground, the cellars cemented, and the first floor constructed of double thickness of planking. Lastly, the surrounding soil should be thoroughly drained before building operations are begun.

REPORT ON THE U. S. RECEIVING SHIP LANCASTER.

By CLEMENT BIDDLE, *Surgeon U. S. Navy.*

The *Puritan* was placed out of commission November 16, 1903, and the officers and crew transferred to the *Lancaster.*

The force attached to the ship and camp has been very much reduced and, in consequence, with improved sanitary conditions, there has been but little sickness.

For the period from November 16 to December 31, 1903, the daily average of sick has been 2.08, and the total sick days 94.

A quarantine building, for recruits solely, has been established, where such men are kept at least twenty-one days before being allowed to mingle with others in the camp. At the same time their vaccine marks and general health are under observation.

So far this plan has worked well. Stragglers and certain men under detention are likewise restricted to a building, where they are detained fourteen days and then liberated if free from disease.

By rigidly enforcing these regulations it is believed the ship and camp can be kept free of the diseases that prevailed here last winter and which caused so much trouble.

A suite of compartments on the gun deck for the medical officer, consisting of dispensary, office, bath room with water-closet, and examining room, have been built aboard the *Lancaster.* They are provided with running hot and cold water, are well ventilated and lighted, and in every way adapted to the purpose in hand.

It is recommended that a suitable building for quarantine and detention purposes be constructed. Those now in service were built for other uses and are altogether too small.

The camp is permanently in commission and the new dormitory buildings will soon be opened for occupancy. The major portion of the medical duties are still carried on in the camp, and all the recruiting examinations take place there.

REPORT ON THE UNITED STATES NAVAL TRAINING STATION, SAN FRANCISCO, CAL.

By H. B. FITTS, *Surgeon, U. S. Navy.*

Since the establishment of a naval recruiting station in San Francisco, comparatively few enlistments have been made at the station. Only 12 new enlistments were made during the year, 15 recruits being examined and 3 rejected. The average complement for the year was about 620, all told.

Diphtheria was epidemic from about the beginning of the year until September. There were 40 admissions, causing 879 sick days.

Measles prevailed about the same length of time and 47 cases occurred, with 506 sick days.

Variola was responsible for 13 admissions and 495 days. These were transferred to the United States quarantine station on Angel Island, while all the patients with other contagious diseases were treated at the station.

Parotitis epidemica caused 70 admissions and 934 days. There were no deaths and no bad results from any of the contagious diseases except 2 cases of post-diphtheritic paralysis.

There were 150 admissions for scabies, which existed to a greater or less extent almost all the time, nearly every draft of recruits bringing a few cases.

Pneumonia was prevalent throughout the year, occasionally assuming the character of an epidemic. Fourteen cases were transferred to the hospital at Mare Island, 2 died, 15 were returned to duty, and 2 were invalided from the service.

Tonsillitis, usually follicular in character, bronchitis, coryza, and other acute affections of the respiratory organs, of a more or less serious nature, were rife all the year round. At times it seems as if all of the five or six hundred people on the station were sneezing and coughing at the same time.

Local climatic and weather conditions are doubtless responsible for the large number of apparently trifling ailments which often develop into more serious diseases. I can not agree with those who consider this a salubrious climate, and the locality as one well suited to the needs of a training station. The island is so situated as to catch all the fogs and cold winds of the bay, while the barracks and grounds are in a kind of hollow through which the wind draws with penetrating sharpness. The building, also, is so constructed as to almost completely exclude every ray of sunshine, which in this climate is so essential to health.

The latter evil has been partially remedied by the putting in of skylights in the roof over the drill hall, while the unfavorable nature of the surroundings has been somewhat improved by macadamizing the drill ground. The dust from this ground, which was one of the most fruitful sources of disease, has been much lessened, thereby conducing to the health and comfort of all on the station.

There are three places on the station where the sick are cared for, viz: The sick bay on the ship, with a capacity of 6 beds; a small building back of the barracks, originally intended for a commissary storeroom, with accommodation for 10 beds, and two rooms contiguous to the stable, each capable of containing 10 beds. This latter building, owing to its unfavorable location, has been almost entirely devoted to other purposes, while the contagious sick, for whom it was intended when built in October, 1902, have been treated in hospital tents erected on the army reservation a short distance from the barracks. One of the rooms is used as a storeroom for medical supplies and for the dentist's office, while the other is used as a bathroom and for the overflow of ordinary ailments from the sick bay of the ship. It has been found to be more advantageous to treat the contagious sick in tents. Eight of the latter have been provided with board sides, making them very comfortable for 4 beds each.

The means adopted for eradicating contagious diseases have been fully described in previous reports, but it may be briefly mentioned that this consisted in temporarily abandoning the station and going into camp for about a month. During this time the hammocks and clothing of all the men were several times disinfected by means of the large sterilizers at the quarantine station, while the barracks and ship were thorougly disinfected and painted.

The health of the men was so improved by the camping out, and the subsequent health of the station was so much better, as to suggest the idea that it would be desirable to have some place where the men could go into camp for several weeks every summer while the ship and barracks received a thorough overhauling and cleaning.

Undoubtedly one of the greatest difficulties with which the station has to contend is lack of room. If there were, adjacent to the barracks, available space for the erection on short notice of a number of tents, where all the apprentices and landsmen for training could be transferred without interfering with routine duties, it would contribute greatly to maintaining the health of the station. In case of an epidemic it would be the quickest way in which to eradicate the disease, while it would be highly advantageous for the purpose of isolating a draft of men before transfer in order to prevent conveying contagion to the training ships.

The small steam sterilizer with which the station was supplied has proven very useful for disinfecting the effects of a few patients at a time. But for the purpose of disinfecting the effects of all on the station at once it was found better to utilize the bagroom in the barracks, the clothing being spread out on the racks, and formaldehyde gas from the autoclave turned into the room. This proved effective in arresting an epidemic of measles and one of diphtheria, which occurred after the return of the personnel from quarantine.

If this place is to be retained as a training station, it is, in my opinon, indispensable that a hospital be built capable of accommodating 40 or 50 patients. But since the climatic conditions are so unfavorable for the treatment of the class of diseases which occur here most frequently, it would still be necessary to transfer a number of patients to Mare Island, where the conditions are so much better.

The station is fortunate in having secured the services of an excellent dentist in the hospital steward ordered here for that duty, and a number of men are induced, by reason of the convenience and reduced cost, to have dental work done which they would otherwise neglect.

It is found that about 85 per cent of all the recruits who arrive at the station have teeth that are in need of immediate attention, an average of four fillings for each man being required.

REPORT ON THE UNITED STATES NAVY-YARD, LEAGUE ISLAND, PA.

By O. D. Norton, *Surgeon, U. S. Navy.*

Few cases of malarial fever have been observed, and but one typical case was contracted here during the year. With the exception of clearing off the undergrowth and draining the large field that extends to the camp (78½ acres), nothing has been to prevent the growth of the mosquito. Many mosquitoes have been examined and but one *anopheles* found, that specimen being captured on board the *Prairie* by Surgeon Wieber while that vessel was in dock, and it is quite possible that this mosquito was brought to the yard on the ship.

During the summer the attention of the yard was called by the city board of health to the prevalence of typhoid in the city and the danger incurred in drinking Delaware water by the employees of the yard. On recommendation of the medical officer of the yard all the taps in the different shops and buildings were painted red and tagged with a copper tag on which was stamped "Dangerous, unfit for drinking." The fire mains also were painted red, so that now there is a warning on nearly every faucet in the yard from which Delaware water can be obtained. Unfortunately there is one exception. This is in the marine barracks where there are 86 taps for Delaware water and only 2 for potable artesian water. Nothing has been done to remedy this fault.

The water supply (all Delaware) in the sick bay at the barracks is defective. It is received from a tank on the fourth floor to which it is pumped from below. It is quite a common occurrence to be without flushing water in the water-closet or running water in the wash basin or tub. All drinking water must be carried in buckets or pitchers from one of the two taps of potable water in the building, and these taps are located, one in the basement and one in the kitchen on the first floor. The sick bay is on the third floor. The system of heating water for the barracks is also seriously defective and it is only on rare occasions that hot water is available in the sick bay.

During the year 1903, there have been 9 cases of typhoid fever at the barracks. The daily average of marines at the barracks during the year 1903 has been 371.

For sanitary reasons the medical officer of the yard fumigated the receiving ships *Puritan* and *Lancaster*, both out of commission at the time. In the former, formaldehyde was used from 5 large Kuhn generators and the fumigation was most thorough. On account of the large amount of space on the *Lancaster*, all the hatches leading to the gun and berth decks being open and the boilers and engines having been removed, sulphur was used. Two hundred and forty pounds were burned in 12 large iron pots, each containing 20 pounds. The hatches leading to the spar deck were closed and the ship made as airtight as possible. The fumigation seemed to be very efficacious.

The general sanitary condition of the yard is good. There are four outhouse privies in the yard, the receptacles of which are wooden boxes. A constant inspection of these is necessary to insure their being emptied before overflowing. Three of these privies are in the rear of the three houses used by employees and their families living in the yard.

The drains of the houses mentioned are in bad order, the wash water and kitchen sink draining on the surface under the house. There are no cellars. It is recommended that these houses be sewered.

Steps have been taken for the building of two large water-closets for the yard workmen. Plans have been drawn and the sites located.

The yard dispensary was built in 1870 at the old navy-yard and floated to the present yard in 1876. It is a most dilapidated old building containing four very small rooms, and it is inadequate for the use to which it is put. There is no room in which to stow medical stores, and the hospital steward is compelled to live in the city for want of space in the dispensary. During December a coat of paint was applied to the roof and outside of the building, making its external appearance more presentable.

During the past year 490 marines were vaccinated here. Of this number 95 were first vaccinations. The records show that there were 112 successful vaccinations. It was impossible to determine the result in many cases owing to the transfer of the men. Thirty-four cases of vaccinia were so severe as to necessitate admission to the sick list.

During the past three months scabies has been very prevalent at the barracks. Obstinate cases were transferred to the hospital. On December 30 all the marines on duty at the barracks, viz, 324, were stripped and personally examined by the medical officer. Seventeen concealed cases of scabies were discovered and, incidentally, a number of venereal cases who had been treating themselves. The brig at the gate, containing ten cells, and the brig at the barracks, containing six cells, were fumigated with formaldehyde, it having been noticed that the proportion of prisoners having scabies was much greater than among the men not confined.

The need at this yard of a steam sterilizing plant where bedding and clothes can be sterilized was shown in handling these cases.

On account of the insanitary location of the commandant's house at the entrance to the yard it has been unoccupied since spring. Little if anything has been done toward the filling in of the space between the retaining wall of the back channel and the grounds to the south of the house. In wet weather it is practically surrounded by a swamp.

The water-closet for the prisoners confined in the brig at the gate is some distance from the building in which the cells are located. This necessitates exposure during inclement weather. The water-closet drains either into the sluggish water in the rear, or on a mud flat at low tide.

It is regarded as insanitary that one of the largest sewers in the yard should empty into the slip in which the receiving ship lies instead of into the river from the end of the dock where the sewage could be swept away by the tide.

During the year there were 172 accident cases occurring among the yard employees treated at the dispensary. Nineteen of these cases were sent to the Methodist Hospital. This record does not include the total number of cases occurring at the new dry dock.

Numerous chemical analyses of various materials used by the different departments in the yard have been made at the dispensary.

On account of the growth of the yard and it being made a rendezvous for marines before they are embarked for distant service, an adequate dispensary is greatly needed, with sick bay and quarters for the hospital steward and apprentices, and a room to stow medical stores.

Owing to the increased demand on the present artesian-water system I strongly recommend the boring of another artesian well, and that the Delaware water be used only for flushing and for the fire mains.

REPORT ON THE UNITED STATES NAVY-YARD, NORFOLK, VA.

By I. W. KITE, *Surgeon, U. S. Navy.*

The health of the yard for the past year was very good. There were no epidemic diseases, excepting a few cases of mumps on the torpedo boats, and the diseases treated were of a wide variety. During my term of duty here there has been a remarkable absence of malarial diseases from which this station in times past suffered so severely. During the first quarter there occurred quite a large number of cases of remittent and intermittent fevers of malarial origin, but the cases were, almost without exception, marines who had recently returned from the West Indies. Six cases of enteric fever were treated. In two of these the men were ill upon arrival here from the recruiting station, infection having taken place before enlistment.

One hundred and seventy-three cases of disease or injury among the marines and enlisted force of the yard were admitted during the year, including 9 readmissions. Of these, 74 were discharged to duty, 84 to hospital, 14 from service by medical survey, and 1 died. The latter was a case of heat prostration.

The total sick days for the year were 786, being an increase of 118 over the preceding year, but the average complement for the year 1903 was 377, while that of the previous year was but 296.

Forty-nine applicants for enlistment in the Marine Corps were examined, 21 being accepted and 28 rejected. Of the total, 44 were first enlistments, of whom 17, or 38 per cent, were rejected.

The 14 men discharged from the service by survey were marines, and with one exception were recruits just arrived from recruiting stations where civilian physicians were employed.

It is urgently recommended that the practice of employing civilian physicians for the examination of recruits for the Marine Corps be discontinued, or, if that should be impracticable, I would suggest that such recruits as are examined by civilians be not finally accepted or fitted out until they have been reexamined by an experienced medical officer of the Navy.

Various improvements in the sewer system of the yard were made during the past year. A new sewer was laid between dry docks Nos. 1 and 2, and repairs were made to the existing sewer system to keep it in proper condition. The water-closet between the dry docks, for use of ships in docks, was practically renewed. The old dry earth privies, for the use of the servants at the various officers' quarters, were removed and suitable water-closets connected with the sewer system of the yard were installed. This was a most desirable change.

Work is soon to begin on a new cistern—capacity 500,000 gallons—in the western part of the yard, between the marine barracks and the dispensary, for the purpose of keeping a reserve supply of water on hand for use in the electric plant of the yard. The water is to be collected from the roofs of adjacent buildings.

In December the contractor commenced digging for the new dry dock in the southern end of the yard. This is to be one of our largest docks and will necessarily require an enormous amount of excavating. How this stirring up of mud and the filth and rubbish which have been dumped in this part of the yard for many years past will affect the health of the yard remains to be seen.

A shed for stowing steel plates and a new equipment building are being erected in the northern end of the yard near the water front. It is most unfortunate that this part of the yard was selected for the location of these buildings, for besides completing the shutting in of the little park here (there being buildings already on three sides of it), they will occupy that part of the water front which formerly remained open as a recreation ground for the crews of ships undergoing repairs at the yard. This park is about the only place in the yard where officers and their families can go in the hot months for recreation and fresh air.

One very improper arrangement in connection with the sewerage system of this yard is that the mains empty the sewage along the water front where ships lie. The outlets are under water usually, but at very low tides they are uncovered, and at such times the odor of sewage is very apparent. The outlets should be at the extreme northern corner of the yard or else carried out under the water for some distance away from the berthing places for ships.

There was an unfortunate omission made in the construction of the dispensary here in that no water tank was put in the attic, and consequently no connections made by which cistern water from the yard can be supplied to the building. The pharmacists' quarters are supplied with water for cooking and bathing purposes from the city of Portsmouth—a very objectionable arrangement. The drinking water used at the dispensary is brought from the cisterns in the yard by a water cart. There should be a tank of large capacity in the attic, with pipes leading from it to supply all parts of the building, and the use of city water discontinued.

The past year was a busy one at this yard. A great many ships and small craft were under repairs and this necessitated employment of an army of workmen. There were 2,519 men employed monthly, not including those employed by contractors.

There were 98 cases of disease or injury among the workmen in the yard which were of sufficient importance to be recorded at the dispensary, and 2 deaths. This is but a small per cent of the total cases treated by the yard surgeon, as only those cases were recorded which were of a serious nature. Among the injuries recorded were 11 fractures of various parts of the body, and of these, 4 were compound comminuted fractures of the lower limbs.

REPORT ON THE UNITED STATES NAVAL STATION, SAN JUAN, P. R.

By George Pickrell, *Surgeon, U. S. Navy.*

The present naval station consists of 8 acres of flat land jutting out into the bay of San Juan. The average height of this land above the sea level is about 2 feet. Two acres of this territory are set apart and cemented for use as a coal pile. The 6 remaining acres are devoted to buildings used as officers' quarters, offices, storerooms, marine barracks, and sick quarters. Excluding the walks, roads, etc., there remain about 2 acres of vacant ground. As there are no workshops, the yard is used mainly as a coal and provision supply depot and as a station for marines.

The buildings of the station are substantial adobe structures, cool, and well ventilated, but have the common grave fault, owing to the slight elevation of the ground above the sea level, of having their foundation laid under water, and consequently the dampness, which is marked at all seasons of the year, at times becomes a serious menace to health.

The marine barracks are inadequate for the garrison stationed here, and necessitate the placing of two beds in contact with a passageway between each two beds. More floor space is allowed in temperate climates than is here available for men doing tropical service.

The sewerage system of the station is lamentably defective. Practically all of the sewers empty into the bay to the eastward of the station, and, as the constant winds are from the eastward, and this portion of the bay is shallow, with little current, the sewage backs up against the sea wall. If they emptied to the southwest there would be found deep water, current, and wind to speedily remove the sewage. Owing to the slight elevation of the grounds at very high tides, which occur several times a year, the water backs up in the sewers and then overflows through the closets.

Mosquitoes are not only a serious pest but a grave menace to the health of the station. The *culex*, *anopheles*, and *stegomyia* are all here in abundance. Notwithstanding the presence of the *anopheles*, there is very little malaria which can be ascribed to infection here. The *stegomyia* is principally interesting on account of the possibilities of yellow fever being imported.

The filaria sanguinis hominis is not uncommon here and is supposed to be transmitted by the mosquito. Although several cases have been seen among the white race, I have yet to see a case in a person not a native of the Tropics. With time no doubt we will have such cases among our people in this island, as all the conditions for infection undoubtedly exist.

Anchylostomiasis is the cause of a greater number of deaths among the natives of the island than any other one disease. The insular government is making an effort to get it under control, and has established a camp for its study and treatment. There is little danger of our men acquiring it under present conditions.

The medical history of the station has been uneventful during the past year. Venereal diseases still cause most of the ill health. Syphilis is very common and of an unusually severe type. Were this class of diseases excluded the health of the station would be excellent.

The almost constant easterly winds sweep over the station, and to this cause is probably due our immunity to many of the tropical diseases that seem to threaten us.

REPORT ON THE UNITED STATES NAVAL STATION, ISLAND OF GUAM.

By R. P. CRANDALL, *Surgeon, U. S. Navy.*

Since my last report the general health of the naval station has not been so good, and I consider this to be directly due to the enfeebled and debilitated condition of the officers and men of the command from prolonged stay in this climate. After the first year the men, as a rule, begin to show physical and mental deterioration, which becomes more and more marked with the length of the stay. During the year 1903 it was necessary to survey and invalid to the United States 4 officers and 24 men, mostly cases of recurring dysentery. A second or third attack of dysentery usually results fatally. There were 4 deaths during the year, 3 from dysentery and 1 from abscess of the liver. The case of abscess of the liver was operated on successfully, but recurring abscesses in both lobes resulted fatally some weeks after the operation. The greater part of the command were relieved in December. The outgoing troops for the most part showed emaciation and debility, some of them having been here or in the Philippines more than four years. I again most urgently recommend that the term of service at this station, both for officers and men, be limited to two years.

The decrease in sickness among the natives has been quite marked. They now seek medical aid promptly when ill. The work among the natives is much facilitated by two Filipino assistants, who are invaluable to the medical corps.

The health of the town of Agaña, the seat of government, and its suburbs would be vastly improved by the construction of suitable waterworks and subsurface drainage. At present the water supply is is obtained from wells, which are in many cases contaminated by the drainage from houses and outbuildings. This does not apply to the naval station proper, which receives its water supply from a distilling plant. Whenever a well is known to be contaminated it is at once closed and filled in. The soil is saturated with the germs of dysentery and the ova of lumbricoid worms. With good subsurface drainage and a water supply from the hills back of the town dysentery and lumbricoids would undoubtedly decrease.

During December the 13 midwives who had been granted licenses last year were given a thorough course of instruction in practical obstetrics in English, Spanish, and Chamoro, and afterwards examined orally and clinically. Twelve of the 13 passed successfully and were granted ordinary licenses. Increased proficiency shown by midwives entitles them to a license of the first class and the right to collect a larger fee. Each midwife receives the necessary antiseptic dressings and solutions from the hospital.

Among the many interesting obstetric cases handled during the year was one of quadruplets. Although given the greatest care and attention they eventually died.

The leper colony at Tumon has had 2 deaths and 1 addition. The inmates seem contented and take much interest in cultivating their small gardens. In addition to what they raise they are supplied by the insular government with corned meat, rice, and biscuits.

The island is gradually recovering from the hurricane which laid waste so many of the ranches, and fruits and vegetables are now more abundant and nutritious.

In the early part of the year the station ship *Supply* arrived, and is a great addition to the station, offering as she does a haven for convalescing cases. One medical officer is detailed to look after this ship and the small towns in the vicinity of her anchorage.

The navy sick quarters still occupies the Maria Schroeder Hospital (belonging to the island government), and it is fairly satisfactory. Many improvements have been made in the way of shower baths, drainage, etc.

The lack of funds for island purposes is a serious drawback. This is especially true in educational matters. There being no money available for schools the children run wild, and can not be taught the proper rules of health.

REPORT ON THE UNITED STATES NAVY YARD, PENSACOLA, FLA.

By H. N. T. Harris, *Surgeon, U. S. Navy.*

The health of officers and men of this yard has been good during the past year.

The most pressing need from a sanitary standpoint exists here for a proper and sufficient supply of water for drinking, cooking, and bathing purposes. The present supply for drinking purposes is rain water, stored in brick cisterns, there being one cistern for each of the quarters. These cisterns furnish enough water for drinking, but are so situated that the floor is either flush with or below the level of the surrounding earth. As there is a very large amount of decaying vegetable matter in the soil, and as the level of ground water is rarely lower than 3 feet from the surface, and frequently much higher on account of high tides and heavy rains, the water in these cisterns has come to be regarded with a certain amount of suspicion. An examination has shown the presence of organic matter in considerable quantity, but no chlorides. However, the subject is still under investigation, and should it be necessary the Bureau will be informed further on this subject. The water used for bathing is obtained by driven wells, which are about 10 feet in depth, the source of supply being ground water. It is really impossible to convey in a letter a correct idea as to the character of this water. It is always discolored, frequently has a very foul odor, and if allowed to stand for a while a very heavy sediment will form. Nothing would be accomplished by condemning this water, for there is no other water to replace it. There is no proper system of sewerage at the yard. A large sewer main extends along the rear of the officers' quarters opening into the bay at the east side of the yard. Communicating with this sewer main are smaller sewer pipes leading from each set of quarters. These smaller pipes carry away the water from kitchen and bathrooms, and, together with the main sewer, are flushed out by a yard engine once a week. The gradient of these pipes is so slight and the level of the water in the bay so near that of the navy yard that there is no flow ordinarily. Hence, it will be necessary in any system of sewerage installed to use pressure to effect proper drainage. If it is the intention of the Department to enlarge this station, an adequate supply of water and a proper system of sewerage will be essential from a sanitary standpoint.

The quarters here, with the exception of the commandant's and the civil engineer's, are old and not adapted to this climate. The lower floor is quite near the ground, and in rainy weather these rooms are unfit for occupancy. With certain winds during the cool weather the moisture of the atmosphere condenses on the interior of the rooms to such a degree as frequently to run down and form small pools on the upper edge of the chair boarding or the floor. In the house recently erected here by the civil engineer, both the inside and outside of the walls are wood, and this condensation of moisture does not occur.

In view of the above facts, whenever new quarters are erected here the first floor should be at least 4 feet from the ground, and the main portion of the building should be of wood.

The quarters occupied by the marines are excellent, being the second floor of a large brick building 20 feet above the ground. There are leaks in the gutters of this building, which have made the walls quite damp, but arrangements have been made, I believe, for the proper repair of this defect. Like all other brick buildings in this locality, after the cool weather has set in, the walls become, with the first rains, quite damp, and remain so during the winter and spring seasons. It is impossible to determine whether all the moisture in these brick walls comes from the atmosphere or partly from the groundwater by absorption. However, it is a very undesirable condition and indicates clearly that living quarters in this climate should be constructed of wood.

The bathroom is on the lower floor of the building at its south and immediately beneath that part of the upper floor occupied as quarters by the commanding officer of the marines. The bathroom has no ceiling and is filled a good deal of the time with hot vapor, so that the upper floor is kept more or less damp. This bathroom should be removed from the building entirely.

The sailors' barracks is on the upper floor of another large brick building, and with the exception of damp walls in winter its condition is quite sanitary.

The navy-yard prison is a brick structure containing six cells, of which five are intended for prisoners in solitary confinement. The floor is of brick and is too near the ground to be healthy; in fact the whole structure is old and should be replaced by one built upon modern plans.

UNITED STATES NAVAL RESERVATION.

The towns of Warrington and Woolsey are located on the naval reservation, the former on the west and the latter on the north side of the navy-yard. The total population of both villages is 1,500 people, the majority of whom are colored.

The worst features of these villages and the adjacent reservation, from a sanitary standpoint, are the very defective drainage and almost entire absence of a proper supply of potable water. In consequence of the bad drainage a large number of mosquitoes develop every year, and as a result of the bad water used for drinking purposes typhoid fever has been more or less prevalent. There are several bodies of water on the reservation near the navy-yard, the largest of which is called the Spar, or Commodore's Pond. As these bodies of water are more or less sluggish, if not actually stagnant, they are prolific breeding places for insects, especially mosquitoes, and in my opinion they constitute a constant menace to the health of the navy-yard. I believe that as long as they remain in their present condition this yard will not have immunity to epidemics. The Spar Pond drains normally in a northeasterly direction into an arm of the bay known as the "Big Bayou." As the gradient is slight it might be feasible to have the water diverted, and, by means of open sewers constructed of a vitrified material, be made to discharge into the bay through the streets of Warrington and Woolsey. I think the fall is sufficient for the water to drain in this manner normally if diverted from its present course as above suggested. It should be stated in this connection that this pond is supplied by one or more fresh-water springs.

By an allowance of money from the Bureau of Yards and Docks a great deal is done annually to improve the sanitary condition of the reservation, such as digging out drains, placing kerosene on pools of water, and lime in mud puddles, but this is obviously of a temporary nature and does not get at the real source of the trouble. This particular part of the work is done with the assistance of one hospital apprentice. Pharmacist Waggener does a great deal of work in this direction, making, during the warmer seasons of the year, weekly house-to-house inspections. In my opinion, however, when there is need of this work at all one man is unequal to it, and I respectfully recommend that two men be appointed to assist in this inspection and properly instructed as to their duties.

When anything like an epidemic appears in this part of the country, such as the outbreak of yellow fever at Fort Barrancas, adjacent to the navy-yard, in 1897, the work of looking out for the reservation and thereby protecting the yard devolves upon the navy-yard authorities, and it seems the wisest course to make provision for such a contingency in advance.

REPORT ON THE U. S. RECEIVING SHIP WABASH.

By G. B. Wilson, *Surgeon, U. S. Navy.*

This ship has been moved from her old berth in the middle of the yard to its extreme northeastern point. This change has not improved the sanitary surroundings, there being considerable muddy ground and basins containing live oak and other lumber for seasoning and preserving purposes extending along the port side. These flats and timber basins are left covered by the outgoing tide with a slimy deposit of mud and vegetable matter which, in warm weather particularly, gives rise to a foul smell that is blown aboard ship. There seems to be no way to remedy this evil, as the whole navy-yard water front is taken up.

As to the vessel itself, some changes have been made aboard, some are being made, and some are contemplated.

After the transfer of the *Southery* to the Portsmouth, N. H., Navy-Yard, additional brig facilities had to be provided to accommodate the large number of stragglers and court-martial prisoners. Four additional cells were constructed, making nine in all. They are located abaft the sick bay, on the berth deck, four on the starboard and five on the port side. The space between the cells has been partitioned off from the rest of the deck, half the partition being of wood and half of wire screening. Men awaiting trial, action of the Department, or sentence are confined in this space. The cells on either side shut out the light from the ports here, consequently electric lights have to be used exclusively.

Both the lighting and ventilation of the cells and general brig are bad. The total floor space of the brig is approximately 700 square feet and the air space 4,000 cubic feet. With an average of 52 men daily confined there, this is inadequate, being only about 75 cubic feet per man, and is prejudicial to health, especially as the only source of ventilation comes from the berth deck and two small hatches overhead. To relieve this unhygienic condition additional prison accommodations are to be constructed in the forward hold. It is earnestly recommended that these spaces be provided with artificial ventilation.

A complete modern cooking apparatus, consisting of 3 steam jacketed kettles, two steam vegetable cookers, 2 large steam coffee urns, and 5 Bramhall, Dean & Co. ranges, is being installed. This plant is designed to cook for 1,000 men. The old galley was antiquated and inadequate for such a large number of men as have to be cared for aboard this ship. At times it has been necessary to commence cooking breakfast four hours before serving in order to have a sufficient amount cooked for that meal. This made it unpalatable and unwholesome.

Plans have been made for a wash room for the men, forward on the port side of the spar deck. This compartment is designed to contain 5 bath tubs and 6 to 8 showers, each tub and shower to be in a separate room; 24 hand wash basins, and 24 laundry basins for washing clothes. All these basins and tubs are to be supplied with hot and cold fresh water. Pending the contemplated new washing facilities, only 2 bath tubs and 2 laundry tubs are provided for the crew in a small wash room on the gun deck. While the new wash room will be a great improvement, it does not appear adequate in winter to the needs of a large number of men, as the showers can not be used for lack of hot water. It is to be regretted that the men's wet wash clothes have to be continually dried, in cold weather, by hanging them up on the spar deck, where the crew live. This vitiates the air and gives the men's quarters an untidy appearance which is discouraging to young men entering the service.

To remedy these defects an ample washhouse, for scrubbing clothes and bathing, and a drying room should be constructed on the dock adjacent to the ship, as the deck space on board ship is too small to permit further encroachment.

The general health of the personnel has been very fair, considering the great number of recruits that have passed through this ship.

Since July 22 a hospital steward for dentistry has been attached to this ship and has proven to be of great service to the enlisted force. Unfortunately his office is located at so great a distance from the ship that it causes unnecessary delay and a desirable supervision of his work can not be made by the medical officer.

REPORT ON THE UNITED STATES NAVAL TRAINING STATION, NEWPORT, R. I.

By G. H. BARBER, *Surgeon, U. S. Navy.*

The average complement of the station during the past year has been as follows: Officers, 36; enlisted men, 240; marines, 80; apprentices, 766. The total number at the station during the year was 2,327.

The enlisted men of the station, with the exception of the instructors for the apprentices, are stationed on board the *Constellation*. The general sanitary condition of this ship has been excellent. There have been few cases of serious illness, and in no case has the cause been assigned to their environment.

The general sanitary condition of the marine barracks also has been excellent. The barracks, though intended merely as a temporary building for the station guard, has been kept in as good repair as it is possible to keep such a structure. With an average complement of 80 the dormitories allow about 600 cubic feet of air space per man, with fairly good ventilation. Any increase in the size of the marine guard should be provided for by an extension of the present barracks, or, should the increase be intended as a permanent one, it would be far preferable to erect a new building, which should include as an essential feature all the latest sanitary improvements as adapted to the construction of military barracks.

There have been practically no cases of serious illness among the marines during the year. The proportion of venereal diseases among them has been noticeably large—and the same remark applies to the enlisted men of the station. One case of clinical and 5 cases of laboratory diphtheria were encountered in July. The guard was placed in camp and the barracks, together with the clothing and personal effects of the men, were thoroughly disinfected, and no further cases have developed.

The general sanitary condition of the apprentice barracks has been decidedly bad.

The results of the insanitary conditions which have prevailed here are confined practically to two classes of diseases, viz, general infectious diseases and diseases of the respiratory apparatus. They furnish 65.8 per cent of the total admissions and 39.5 per cent of the total sick days. The same state of affairs has existed for five consecutive years, with an ever-increasing ratio of percentages, which has grown in direct proportion with the increased demands made upon the station for the preliminary training of apprentices.

The diseases are such as one would expect to find among a class of picked men and boys, leading a military life and occupying a station subject to the climatic conditions of this locality.

In November and December of 1902 the sickness among the apprentices became so great as to demand that some action be taken to check the various diseases, which had assumed epidemic force, notably pneumonia, measles, and mumps. At that time the situation was relieved somewhat by transferring to cruising ships 475 boys, but their places were soon filled by recruits arriving at the station, and the epidemic continued without abatement well into the second quarter of the present year. Early in May diphtheria broke out among the apprentices, and during the remainder of the second and the succeeding quarter some 230 cases of this disease were transferred to the hospital.

In the hope of throwing additional light upon the conditions as they have existed here during the past five years the table on the following page has been prepared. In its preparation only such data have been used as related exclusively to the apprentices. Before calling attention to any particular disease or diseases shown in this table it is desired to outline briefly the main features of the environment of the apprentice, from a sanitary point of view, which have been in continuous operation during the period covered by this table.

Prior to November, 1900, the apprentices were housed in the old barracks and on board the *Constellation.* The single domitory of these barracks has a total air space of 151,800 cubic feet. In the drill hall below the air space amounts to 105,000 cubic feet. The arrangements are complete for swinging 250 boys, which allows each boy 607 cubic feet, and there is fairly good natural ventilation. It is to be noted, however, that this remark applies only in moderate weather. During the winter months in this locality the so-called system of natural ventilation as applied to military barracks is a failure, especially in this case, where the total cubic air space is at the minimum allowance. On board the *Constellation* there are berthing facilities for about 100 boys, and transfers were made here from the old barracks whenever there was too much crowding. During the summer it was customary to establish a small camp near this building to provide against this danger.

Diseases.	1898.					1900.					1901.					1902.					1903.				
	Average complement, 337.					Average complement, 568.					Average complement, 982.					Average complement, 999.					Average complement, 766.				
	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Percentage.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Percentage.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Percentage.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Percentage.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Percentage.
Febris pneumonica	21	7	....	2	8.9	4	1	....	10	2.6	36	13	12	7	6.5	8	11	2	17	14.4	21	24	11	3	20.7
Bronchopneumonitis	....	....	....	....		....	....	....	....		....	4	4	1		4	3	21	83		60	33	1	1	
Bronchitis acuta	24	1	1	3	8.6	8	6	3	14	5.4	8	5	22	5	4.0	25	1	....	3	2.9	3	9	3	1	2.0
Bronchitis chronica	....	....	....	....	....	....	....	....	....	....	1	2	....	17	2.0	3	....	....	....	.3	....	3	....	1	.5
Pleuritis acuta	1	1	....	1	.8	2	....	....	....	.3	9	1	3	3	1.6	6	4	9	6	2.5	22	19	7	3	6.6
Pleuritis chronica	....	....	....	....	....	....	1	1	....	.3	....	1	....	....	.1	2	1	....	....	.3	1	1	....	1	.3
Catarrhus bronchialis	1	2	....	1	1.1	....	....	....	....	....	19	3	24	23	7.0	6	1	....	2	.9	3	27	44	18	12.0
Tonsillitis	7	10	1	27	1.3	35	36	11	14	16.8	18	5	17	94	13.6	18	12	1	8	3.9	3	50	33	9	12.4
Morbilli	....	....	....	....	....	1	....	....	....	.1	30	12	13	....	6.0	7	20	18	15	6.0	9	24	....	....	4.3
Rubella	....	....	....	....	....	....	1	....	....	.1	19	....	1	....	2.0	....	....	....	....	....	26	14	....	....	5.2
Parotitis epidemica	54	....	....	....	16.0	....	1	....	....	.1	22	27	....	....	4.9	48	52	....	27	12.7	75	67	1	....	18.6
Scarlatina	1	2	10	....	3.8	....	....	....	....	....	3	....	....	....	.3	....	....	....	....	....	....	2	....	....	.2
Varicella	....	....	....	....	....	....	....	....	....	....	1	1	....	....	.2	....	....	....	....	....	....	4	....	....	.5
Diphtheria	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	140	90	6	30.8
Otitis externa	....	....	....	....	....	....	....	....	....	....	....	....	2	....	.2	2	....	3	33	3.8	....	3	3	4	1.3
Otitis media	1	1	....	1	.8	....	....	....	1	.1	6	2	4	19	3.1	3	11	....	17	3.1	26	9	6	2	5.6
Febris enterica	....	....	1	31	9.4	1	....	2	3	1.0	1	3	1	2	.7	....	....	....	....	....	....	....	....	....	....
Catarrhus epidemicus	21	32	6	25	24.9	20	....	....	1	3.6	....	....	....	....	....	2	2	8	....	1.2	....	....	....	....	....

The weather experienced here during the winter months of 1899 (winter being the only season when the weather can be justly ascribed to exert an unfavorable influence on the health of the station) was the average winter weather of this locality. It should be noted that on several occasions during this period there were as many as 350 boys billeted in the old barracks. A glance at the percentage column of this year (1899) shows at once that we are in close touch with conditions which will be shown to have existed continuously during the succeeding four years, viz, overcrowding, poor ventilation, and abortive attempts at isolation and disinfection as a guard against the introduction of contagious diseases. Epidemic catarrh heads the list, in point of number of admissions, with 24.9 per cent; this disease was epidemic throughout this section that winter. Mumps follows with 16 per cent, and febris pneumonica shows 8.9 per cent. In tabulating the percentages of pneumonia, febris pneumonica and bronchopneumonia have been grouped together. The latter does not appear as the prevailing type of the two diseases until the second quarter of 1903. Prior to that time, and since, it is shown to exist in about the proportion which the authorities would lead one to expect to find it among boys 16 to 18 years of age. Since May 1, 1903, I have encountered but 2 cases of bronchopneumonica. Both were primary and ran a mild course to recovery.

Febris enterica caused 9.4 per cent. This epidemic was probably caused by the use of the Newport water, as the disease prevailed in that city during this year. As soon as this practice was discontinued the disease disappeared, and the few cases which have occurred since that date developed in boys shortly after arriving at the station.

The year 1900 presents an entirely different picture. Although the average complement has increased to 568, yet the sick record for the year presents nothing unusual. The weather was that of the average Newport winter. In January the number of boys was greatly reduced by transfer to cruising ships, and the remainder were divided between the old barracks and the *Constellation*. A camp was formed early in the spring and continued through the summer, and in November of that year the present new barracks were completed and occupied by the apprentices. At no time during this year was there any crowding. From this time on the old barracks have been used only for the recruits. Here they received their outfit and were given a course of preliminary training, which might terminate in a week, depending entirely upon the general aptitude of the boy. Owing to the absence of a separate mess outfit, the recruits were obliged to mess with the main body of apprentices in the new barracks.

In 1901 the average complement rose to 982, and we note a corresponding rise in our percentages, particularly in the class of respiratory diseases. In 1902 there is a further slight rise in the average complement, with a corresponding rise in the percentage of sick, which is altogether disproportionate in the case of pneumonia.

The same condition of affairs continues through the first and second quarters of 1903. During this period matters were further complicated by the transfer from the hospital back to the new barracks of many cases of patients convalescent with mumps, measles, and pneumonia. This practice will account in great measure for many of the cases of mumps and measles, as it is absolutely impossible to isolate cases of contagious disease in any building crowded with boys, as these barracks were at this time. The winter of 1902 and 1903 was remarkably mild for this locality. In November there was an average of 850 boys housed in the new barracks; in December there were 900. This number gradually increased until May 1, 1903, when there were 1,096 boys in this building.

The sleeping quarters in the new barracks consist of eight dormitories, located on the top floor. The total air space is 233,208 cubic feet, thus providing only 212 cubic feet per boy at this time, and even this small allowance was unprovided with any means of ventilation. The ceilings are low, the windows are small and placed midway between floor and ceiling. The epidemic of diphtheria compelled the ultimate transfer of all these boys to cruising ships and camp. During the entire time the boys were in camp only 1 case of pneumonia developed. In July of this year about 175 boys were transferred back to the barracks from camp and crowded into two dormitories. During the week they remained here 11 cases of pneumonia developed. This small epidemic ceased immediately upon their final transfer to camp and no more cases were met with until December of this year. The first recruits were received November 11, and between that date and December 5 some 200 boys were collected in the old barracks. During the succeeding five days 6 cases of pneumonia of a severe type developed. With the transfer of about 100 of these boys to the new barracks the disease entirely disappeared.

From my experience here, during the past eight months, I am firmly convinced that the prevalence of pneumonia at this station, as well as a good proportion of the diseases of the respiratory apparatus and tonsillitis, is due entirely to the crowding in unventilated buildings.

In the table under consideration, otitis, externa and media, occupy a prominent place. Various causes have been given to account for the large number of cases. I have examined the histories of each case which has occurred in 1903 and the record is as follows:

Total number of cases of otitis media		43
From causes existing prior to enlistment (76.7 per cent)	33	
Incident to service (no further remarks given)	5	
Entrance of salt water in ear while bathing in swimming tank	3	
From blows	1	
From blast of bugle	1	
		43
Total number of cases of otitis externa		10
From causes existing prior to enlistment (60 per cent)	6	
Not duty, no act of duty involved	3	
Foreign bodies intentionally introduced	1	
		10

Of the 43 cases of otitis media, 12 were discharged from the service. One case of otitis externa was discharged from the service. The above synopsis of cases would seem to indicate that the only unusual condition which has a bearing on this class of cases is to be found in careless examinations at the time of enlistment.

As a result of the various sanitary reports made during the past year, the following changes in the sanitary arrangements of the station have been made:

1. A wood floor has been laid over the asphalt of the drill hall in the new barracks, and two coats of boiled linseed oil have been applied to this.

2. Urinals have been placed in No. 1 and No. 8 dormitories.

3. A small ward, containing six beds, has been fitted up for the medical department, and a bath tub has been added to the dispensary.

4. As a final act in the disinfection of the new barracks all the interior woodwork was scrubbed with a strong lye solution or scraped. This was followed by a thorough scrubbing with bichloride of mercury. (1–1,000). After two weeks' exposure to the sun and air, the walls were calcimined, all the woodwork painted or varnished, and the floors of the dormitories shellacked.

5. In order to avoid crowding in the dormitories of the new barracks, where the available air space will not safely accommodate more than 400 boys, arrangements have been made for swinging 336 boys over the drill-hall floor. This will give each boy 1,808 cubic feet of air space. It is possible to further increase the number that can be billeted in this space. Should it become necessary, at any time in the future, to house more than 750 boys in this building, I urgently recommend that provision for swinging the increase shall be made in the drill-hall space.

6. A ventilating system for the new barracks is being installed at the present time. It will provide only for the dormitories and drill hall. It is known as the direct-indirect system. It is recommended that the offices, schoolrooms, instructors' room, and dispensary be thrown into this system by placing a sufficient number of shutters in each room, to allow of an exhaust current of air. In the dispensary, in addition to the shutters, it is recommended that a large swinging window be placed overhead, in order to aid in circulation and, at the same time, to light what is now a dark passage between the dispensary and the instructors' room. The water-closet of the new barracks is located in the extreme southwest corner of the drill-hall, and communicates with the rest of the building through this hall. It is extremely damp and very poorly ventilated. With a strong southwest wind blowing, a pungent, disagreeable odor is disseminated throughout the drill hall and office floors.

As the drill hall will be used as a dormitory in the future, I recommend that the previous attempt made to ventilate this space be perfected by introducing a steam coil into the base of the present air duct which leads to the roof above, and increasing the number of lateral ducts by two and leading them to the floor.

7. In order to take every practicable precaution against the occurrence of epidemics of contagious diseases at the station in the future, a system of isolation and disinfection has been inaugurated. The main features of this plan are: First. The construction of a building designed especially for the purpose of receiving, disinfecting person and effects, and fitting out the recruit. Second. The isolation of these recruits from the main body of apprentices for a period of twenty-one days. A building as described above has been completed, and was turned over to the medical department on December 15, 1903.

A part of the routine consists in taking a culture from the throat of each boy to determine the presence or absence of the Klebs-Loeffler bacillus. On December 31, 249 cultures had been examined, and 6 cases (2.4 per cent) were transferred to the hospital on this account.

It is believed that this will result in eliminating entirely the question of diphtheria among the apprentices after their transfer from the isolation barracks.

It is further believed that, by painstaking care to all the details of the plan outlined above, the chances of an outbreak of any contagious disease will be reduced to a minimum. There remain, however, several sources of infection, against which few safeguards can be formulated, viz:

(*a*) The occasional arrival at the station of a case already undergoing the period of incubation of one of these diseases. Such a case will occur in the old barracks, it will be promptly isolated, few exposures will result, and it should not have any influence on the main body of apprentices. No case of a contagious disease has developed among the 249 recruits already received.

(*b*) Visitors to the station. This source of infection can not be avoided entirely. It would undoubtedly be wise to discourage the visits of children during the winter months, and at no time to allow them to roam about the dormitories and schoolrooms.

(*c*) From the station itself. A majority of the instructors and masters-at-arms have homes and live in town. Should knowledge of the existence of a case of a contagious disease in one of these homes reach the station, quarantine, either by the civil authorities or at the station, with subsequent disinfection of personal effects, would be the only resource.

(*d*) Through the mails.

(*e*) Liberty and church parties. These are probably slight dangers and cannot be avoided.

The physical examination of the recruit is a thorough one and includes the gathering of any information concerning diseases or injuries which he may have had prior to enlistment, and which might have a bearing upon his medical history while at the station. This information is tabulated and preserved for future reference in a book kept for that purpose.

REPORT ON THE U. S. RECEIVING SHIP HANCOCK.

By G. A. LUNG, *Surgeon, U. S. Navy.*

It was originally estimated that 1,800 men could swing their hammocks aboard this ship, but the addition of numerous air conduits to the ventilating system covers so many hammock hooks that only 1,481 hammocks can be swung. This latter number should not be exceeded; indeed, the number should not exceed 1,200, as the ventilation will not warrant more. At one period 1,700 men were attached to the ship, though probably not more than 1,400 actually slept on board, the rest being absent on liberty, leave of absence, or were permitted to go to their homes each night.

Up to this date artificial ventilation has not been used. Twelve "Paragon" blowers, worked by electricity, are now being installed.

The prison is in the lower half of an old frame building, above which the library, dental office, and the marine guardroom are located. The entire structure is of wood, and has been in use for twenty-five or thirty years. Between the ground and the floor there is a space of 2 or 3 feet and the soil is saturated with dust and sweepings from the floor. The floor has been repaired from time to time by overlaying the old planking so that the greater part consists of three layers of boards, the spaces between affording lodgment for moisture and filth. The walls are incrusted with layers of old paint.

Until recently the prison was overcrowded, and there were at one time 67 prisoners confined therein. It has a cubic air capacity of 15,963 cubic feet. Upon the recommendation of the medical officer, 20 prisoners were nightly placed in a compartment in the receiving ship.

Not the least of the dangers of the prison is from fire, and should that occur at the exits, it would render the rescue of the inmates difficult.

Recruiting is carried on in a building on the Cobb dock, and two rooms are assigned the medical department, one as an office, the other as an examining room.

The services of a dentist, enlisted as a hospital steward, have been of great benefit. Since July 22, 260 patients have been treated and over 600 fillings of various kinds put in.

REPORT ON THE UNITED STATES NAVAL STATION, PUGET SOUND, WASHINGTON.

By A. R. ALFRED, *Surgeon, U. S. Navy.*

The health of this station, as shown by the statistics of the year 1903, as well as of previous years, must be considered as good. Of 3,967 sick days, the total number for the yard and the hospital during the past year, general infectious diseases and injuries have been credited with 1,063 and 875, respectively, these two classes together claiming 1,938 sick days, almost half of the total number. Diseases of a contagious nature have been isolated in tents and in an old frame building used as a pest house.

During the summer and early fall, when a number of naval vessels were at this yard, the present fourteen-bed hospital was at times filled and patients were placed in the pest house and in tents. In case the Puget Sound Navy-Yard grows in importance and many naval vessels call here, a large naval hospital will be needed, including an infectious hospital, disinfecting plant, stable, laundry, etc. I respectfully recommend that a site be selected for the future naval hospital buildings in that part of the navy-yard grounds west of the ravine, and that an infectious hospital and disinfecting plant be erected as soon as practicable on the tract of ground referred to, the area being about 12 acres of comparatively flat and gently sloping ground.

The present naval hospital is not yet completed, the new wing requiring completion of the interior fixtures. The first-built portion was opened for the reception of patients on May 1, 1903, thus being occupied 245 days during the calendar year.

There were 4 cases of appendicitis admitted to the hospital during the year, of whom 1 operative case recovered, 1 operative case was continued to 1904 with a contracted scar, but improving, 1 died without operation, and 1 recovered without operation. One operation for hernia and 1 for varicocele were performed. One severe case of double fracture of the right femur was continued to 1904, an operation being performed, freshening the contiguous ends of the upper fracture and wiring them. One operation was performed for urethræ strictura. One pneumonia patient from a visiting ship died two days after admission to hospital.

At the dispensary, 144 yard workmen were treated for injuries, 1 death occurring from fracture of the base of the skull and compression from hemorrhage. Among these, amputation of the fifth, the fourth, and part of the third fingers of the left hand, in one case, and suturing of a severed tendo Achilles in another, were performed. Numerous cases of steel and other foreign bodies in the cornea required removal. In one case the right eye was destroyed by a flying piece of metal.

REPORT ON THE U. S. RECEIVING SHIP INDEPENDENCE.

By C. P. Kindleberger, *Surgeon, U. S. Navy.*

The *Independence* was launched in 1814 and became a receiving ship at the Mare Island Navy-Yard in 1858. She is to-day the last of our line of battle ships and the oldest ship in our Navy preserving her original timbers. The ship is roofed in and has four decks, including the orlop. The sides are clapboarded, but only the berth deck is shellacked. The decks leak very little except forward. The sides and roof leak, however, and water runs in alongside the keelson continually, and has to be pumped out every two hours by a steam pump. The ship is painted inside and out, with the exception of the holds, which are whitewashed.

Drafts are noted everywhere, it being impossible to keep the seams and air ports tight. The ship lies practically in a mud basin and is aground at low tide. The current is swift in the Napa River and the refuse is quickly washed away by the ebb and flow of the tides.

The ship is heated by steam and lighted by electricity; ventilation is natural. The prevailing winds sweep through the ship, fortunately, so that the air can be changed frequently by opening the ports on all decks.

Water is supplied to the ship from the Vallejo reservoir, and analysis shows it to be good potable water. The ship is kept as clean as possible; five times a day the decks are sprinkled and swept, and three times a day the men are sent out on the dock and everything opened up so as to completely change the air. All hammocks, except those belonging to the prisoners, are kept in the nettings and aired once a week. Bags are stowed in the bag room on the forward orlop deck and are inspected weekly. In the middle orlop hold are 36 small water tanks for ballast purposes only, which are refilled at intervals and kept whitewashed inside and out.

The decks are much worn, and the seams, cracks, and crevices harbor considerable dirt. It goes without saying that this ancient wooden ship has outlived her usefulness as a proper sanitary abode for officers and men; she should be replaced by modern quarters and barracks on shore.

The commissary mess works very well on this ship, the food being well cooked and sufficient in quantity and variety so that very little complaint is heard.

The heads, which are located forward on the spar deck, are of the trough variety, and contain 14 seats and two long trough urinals. Both heads and urinals are continually flushed by fresh water. The floor is covered with sheet lead and everything is kept as clean as possible and frequently disinfected.

The sick bay is located forward on the berth deck, and contains approximately 12,000 cubic feet of air space. It has four iron beds for patients, a bathroom, water-closet, laboratory, dispensary, storeroom, and quarters for the hospital steward. Six large air ports furnish ample ventilation, the deck is shellacked, and the roof and sides are painted white.

There are 550 hooks for hammocks on board (not including the spar deck), and altogether about 600 men can be berthed below; extra men are berthed on the spar deck. The greatest number of men on board during the year was 654 and the smallest number 256.

The ship is connected to the shore by a long, narrow dock, and is moored along the edge of the tules approximately northwest by southeast. In rainy and cold weather the men are much exposed in going to and from the bath house along this dock.

A recommendation has been made to the commanding officer that this dock be roofed in and provided with movable canvas sides which can be shifted to the weather side. Parallel to the ship has recently been constructed a dock about 765 feet long and 45 feet wide (part of the proposed new sea wall), on which the men can take exercise and be drilled.

A wash house for the men is located on the connecting wharf near the ship, and contains 71 basins and a urinal. This building is always kept clean and in good sanitary condition. At the shore end of this connecting dock is located a large wooden building called "the bath house and laundry." In this building there are 20 shower baths, 40 washtubs, 5 large and several smaller tables on which to scrub clothes, and a steam dryer with 18 large racks. Plenty of hot and cold fresh water is always suppled. The floor of this building is of wood, and numerous holes are bored in it to drain the dirty water into the marsh beneath; waste water from the showers and tubs is piped a short distance and empties into the tules. This insanitary method of disposing of the waste water has been pointed out to the commanding officer, and it has been recommended that the floor be made of concrete, graded to a central "Y" drain, the drain to be carried through the tules so as to discharge under water at all times.

A large area of the tules has been filled in by mud pumped out of the channel and the new dry dock. A considerable area still remains unfilled, however, and at low tide the odor from the waste water and tules is very disagreeable.

The men's recreation ground (near the bath house) contains a shuffle board, flying rings, trapeze, horizontal bar, parallel bars, etc. Other buildings belonging to the ship are as follows: A modern shooting gallery, a two-story drill hall, with the crew's library in the upper story, a boiler house, a stable, and about a dozen other small sheds and storehouses.

Mosquitoes are less numerous on the Mare Island side than on the Vallejo side of the Napa River. This is probably due to the fact that there are not so many people here and that crude petroleum has leaked from the tanks of the Atlantic, Gulf and Pacific Company, flooding the marshes (tules). About a year ago an oil barge sank off South Vallejo, and this has helped to cover the marsh land with considerable crude oil. I have been informed by a medical officer that he could find no *anopheles* in the Mare Island marshes. Not one case of malaria originated on this ship during the year, all cases giving histories of previous attacks elsewhere. During the year in Vallejo there were 12 cases of diphtheria, 20 cases of measles, 1 case of smallpox, and a large number of malarial cases.

The climate here is generally good. The rainy and foggy season is supposed to last from November to May, but there are many beautiful sunshiny days during that period.

By order of the Navy Department, the U. S. S. *Manila* is to go into commission (when altered and repaired) as a prison ship for the U. S. receiving ship *Independence.* The medical officer was one of a board appointed by the commanding officer to suggest the necessary changes and alterations to fit her for this purpose. In case of an epidemic this ship could be used as a receiving or isolation ward for recruits. By request of the medical officer, a disinfection boiler, once on the U. S. S. *Solace*, is to be thoroughly repaired, and will shortly be installed in the boiler house belonging to this vessel.

One thousand one hundred and sixty-five recruits arrived on board during the year (exclusive of men reenlisting), and 273 men were examined on board for enlistment.

A hospital apprentice on board, who is a graduate dentist, is of great assistance to the medical officer, and arrangements have been made to clean salivary calculi from teeth and to fill those needing attention. The dentist is also prepared to do crown and bridge work for "all hands," and to make plates and furnish false teeth for the older men on board. All dental work is under the supervision of the medical officer.

Lately the physique of recruits has greatly improved, but at first a special "setting-up" drill list was started for recruits with poor physique, and many were much improved and made fit for duty by this means.

REPORT ON THE UNITED STATES NAVAL STATION, CAVITE, P. I.

By W. H. Bucher, *Surgeon, U. S. Navy.*

The geographical location of this station has been described in previous reports and attention called to the low ground on which the navy-yard and Cavite are built. Very little opportunity for proper drainage is offered and the usual consequence follows, viz, a large percentage of sick. Moreover, in view of the fact that this deficiency in drainage gives the mosquito unlimited sway in prolific reproduction, it is needless to say that the yard is amply provided with this pest. It is of medical importance to recognize the mosquito in this locality, as it has been shown by certain observers that dengue is transmitted by the culex, which is found here in great numbers.

Shortly after my arrival at this post I examined the blood of a patient supposed to have dengue. A plasmodium was noted within the red cells, and outside as well, and the diagnosis was changed to malaria. The next day, however, a beautiful rash appeared which marks the end of an attack of dengue and my attention was called to the fact that perhaps I had seen the parasite causing dengue.

Assistant Surgeon Neilson and myself started to work on most of the cases of fever that presented themselves and in all cases where dengue was diagnosed by the rash, etc., we found this organism constant. It closely resembles that of malaria, but differs from it decidedly in certain respects.

The question of dengue, while of no importance regarding life, is of vast importance in that so many of the enlisted force of the Navy and Marine Corps are incapacitated thereby for their duties. It is absolutely certain that every newcomer in these parts will sooner or later have an attack and, as no immunity is established, repeated attacks await those who must remain here for any length of time.

The mosquito being held responsible for the transmission of dengue, it would seem evident that attempts should be made for their extermination; but the facts that every favorable condition is at hand for their propagation and that drainage is difficult, render it almost an impossibility to rid the yard of this pest.

There are few available quarters in the yard and most of the officers attached to the station are compelled to live outside in the town of Cavite. The houses in which they live are far from sanitary and no modern improvements are to be found. Improvised shower baths and primitive methods for the disposal of waste products are seen as a rule, very few if any of the houses being so luxurious as to have a bathroom with decent appliances.

The surgeon of the yard is a member of the board of health of the city of Cavite, which at present comprises several surrounding towns, making a population in the neighborhood of 20,000. Inasmuch as the percentage of sick under the head of venereal diseases has been extremely high, a request was made of the board to assist in bringing down the rate among the enlisted men. An inspection board, consisting of several native physicians, has been organized, and the prostitutes are examined every four days. Under this state of affairs there has been a remarkable decrease in the venereal list.

There are certain changes that take place in those individuals who are compelled to live here which are worthy of note. Some show evidences of this change early, while in others it does not appear until considerable time has elapsed. It comes to all, however, in greater or less degree. The first evidence of this subtle change, as a rule, is the symptom amnesia. No reliance can be placed on the memory, and the notebook is used to jot down almost everything. About the same time an indifference, so common among the natives, makes inroads on the foreigner and a daily battle against the "mañana" tendency is necessary to keep it from interfering with his duties. This indifference is not confined to man; the dogs in the street move about in a half-dead state, and one is compelled to stop frequently, when driving, to prevent running over these animals that have not concern enough for their welfare to move when in danger.

The normal mind falls below par and an apt expression is used to designate this condition, viz, "Philippinitis," which means a loss of memory, and a general indifference to everything, with various neurotic manifestations, that eventually develop or accentuate existing idiosyncrasies.

Among the enlisted force which arrives, many are of unstable nervous organization and in the process of degeneration, these people follow the lines of least resistance. Alcoholism, excessive use of tobacco, and other excesses are the usual signals of an impoverished nervous system, which under ordinary circumstances would require no stimulation, but here the equilibrium is upset with injurious and pitiful results in many cases.

The drinking of "vino" (a native drink) is common among the enlisted force, and the train of unfortunate symptoms following this habit has no doubt been noted by others with longer experience than mine. While all of these ills can not be traceable to climate and environment, there is a frequency in their occurrence and a flagrant manner about the way in which they are committed that is different from that seen elsewhere. An anæmic brain is incapable of doing good work and most of the people who have spent a long time here have anæmia of one form or another.

It was a wise step to cut the cruise in these islands down to two years, and I thoroughly believe that observations will prove that even two years is too long for the average white man to maintain his health in this climate.

.There have been a few cases of cholera in the towns about Cavite and a few suspicious cases in the town itself.

In the town of Cavite the natives are emaciated, and, generally speaking, physical bankrupts, while their incessant hawking and spitting shows too well the preponderance of lung and throat affections. The foreigner also suffers continually from catarrhal troubles.

The prison at this yard is the receptacle for all those undergoing punishment on the Asiatic Station and is overcrowded. Aside from the air space being sacrificed, there is an immoral element in crowding men into limited quarters.

REPORT ON THE UNITED STATES NAVAL STATION, OLONGAPO, P. I.

By F. L. Benton, *Surgeon, U. S. Navy.*

The present garrison numbers 460 officers and men, all of whom are quartered within the arsenal, as the naval station is called. The smaller stations of Subic, a distance of 8 miles west from Olongapo, and of Morong, 15 miles south, have been abandoned by the marine garrisons, and were turned over to the Philippine constabulary of the island, thus removing two of the most dangerous sources of possible infection from Asiatic cholera to which the station had been constantly exposed.

The naval station is situated upon a large, flat, sandy plain, covering an area of about 20 acres, surrounded on all sides by high mountains, with an intervening large body of water, the arms of Subic Bay, which encircle the station from the north, south, and east. On the west it is separated from the native town of Olongapo by a wall built by the Spaniards and an intervening area of some 5,000 yards. The station has the further natural advantage of lying in the path of the almost constant winds which sweep up the Santa Rita Valley by day and render the station very comfortable by removing the heated air. A reverse process renders the night most comfortable.

The marines are quartered in the new, large, airy, nipa and board temporary quarters (which are very satisfactory in this climate) and in the old Spanish storehouses, which are large, roomy structures built of brick with corrugated iron roof and cement floor. These buildings also are very satisfactory for the use to which they are put, being cool, having a sufficient air space, well ventilated and dry during the rainy season, and by many preferred to the board and nipa company quarters.

The officers' quarters are of the same general character as the company quarters, being constructed of board and nipa, raised from the ground and built on the bungalow plan. They are very satisfactory for a tropical climate.

The water-closets for the men are built out over the water, are well cleansed by the tide, and are sufficient until the time comes for the station to take on a permanent character.

The drainage from the officers' quarters passes into a common drain-pipe leading into the adjoining bay. The station drainage system is of Spanish construction. It is composed of a series of wide, open, cemented drains, which were constructed to carry off rapidly the surface drainage and heavy rainfall which, beginning in June, lasts well into October.

All water used for drinking and cooking is distilled at the station. The cases of diarrhea and dysentery occurring are usually traceable to the men who have been on liberty or in the mountains on hunting passes.

Mosquitoes are not plentiful, but the *anopheles* is to be found.

The general health of the garrison has been good and the physical condition of the men particularly so, due in a great measure to the interest shown by them in all forms of athletics, frequent hunting trips into the mountains, company marches over the mountain trails, and the similar outdoor exercises required of them in the line of duty.

The diseases most prevalent at the station are dengue, diarrhea, dysentery, and intestinal disturbances, with some tropical skin diseases.

An epidemic of dengue presented itself at the station on October 5, and continued actively for a period of five weeks. Very few officers or men escaped. The onset was unusually sudden, with intense headache, backache, and pains in all the larger articulations. The fever ranged from 103° F. to 105.5° F., lasting for a period of three days, and falling by crisis. Prostration and anorexia were at all times very marked in these cases. There was rarely a well-marked interval between the fever of the onset and terminal fever, the attack taking almost invariably an active sthenic type and unaccompanied, except on very rare occasions, by an eruption. The convalescence was always prolonged, and anæmia was a constant sequel. This fever is a constant source of temporary invaliding and anæmia, and at one time there were 19 per cent of the entire garrison of then 560 men unable to perform duty.

There is almost no malaria at this station, all cases appearing having received the original infection at some known locality.

Venereal disease has been reduced by frequent regular inspections to a very small percentage.

Asiatic cholera did not enter the native town this year. Its presence was well known in the neighboring native towns and all precautions possible were taken to prevent its entrance into the town of Olongapo, where daily liberty is given to the men of the garrison. It occurred in the town of Subig, whose 8 cases, the entire number attacked, died. As soon as the diagnosis was assured a sanitary cordon was established around the town of Olongapo and the naval station, the necessary guard being provided by the commanding officer of marines and by the native police placed at our disposal by the Filipino presidente of the town, whose efforts in cooperating with the garrison were most active.

The sick quarters of the station are satisfactory as a temporary arrangement, but in case of the establishment of a permanent naval station at this place, sick quarters of a more complete and permanent nature should be constructed. It has been the custom to send all cases showing any tendency toward chronicity or a likelihood of requiring surgical interference, other than emergency, to the hospital at Cavite, where surgical treatment can be carried out under better conditions than exist at this station.

In view of the possibility of a much larger garrison being established at this place, it is recommended that the large unoccupied building known as the commandancia be authorized as the general sick quarters of the station. With such a large and well-arranged building, enjoying such natural climatic advantages, and in direct communication with Cavite, the establishment of a naval sanitarium at this place, where convalescents could be sent for a period prior to return to duty, might be advisable.

A satisfactory arrangement has been made by which all the meals are cooked in the sick quarters and special diet can be prepared, giving a variety of food to the sick under treatment.

Ice is received twice weekly from Cavite and is a source of great comfort to the sick.

The hospital corps consists of 1 hospital steward and 4 apprentices, not a sufficient number to perform all of the duties required of them in a satisfactory manner at all times. Marines are detailed by the commanding officer to assist them at present.

The medical department during the past year has given regular instruction to all the garrison in first-aid work. Regular hospital-corps drills have been carried out, particularly in the use of the first aid package and all emergency field work. In view of the possibility of an emergency arising, all preparations as to personnel and matériel have been completed, including a field requisition of medical stores prepared and ready for shipment.

All calls for medical aid have been responded to by the medical department of the station, and in consequence much has been done to maintain a friendly spirit among the people in the surrounding province.

REPORT ON THE U. S. PRISON SHIP SOUTHERY.

By William Hemphill Bell, *Passed Assistant Surgeon, U. S. Navy.*

The *Southery* went into commission as a prison ship at Norfolk, Va., on April 5, 1902. On April 6, 1902, she was transferred from that station to Boston, Mass., where she arrived on April 10, 1902. On July 7, 1903, she was again transferred, leaving Boston on this date and arriving on July 8, 1903, at Portsmouth, N. H., where it seems probable she will be permanently stationed as long as she is employed on this duty. Much might be said in condemnation of the employment of a ship for prison purposes, but any criticism along that line would lose force in face of the fact that the *Southery* is but a temporary accommodation, pending the construction of a suitable prison building in this navy-yard.

The *Southery* is in such shape in point of arrangement, condition, discipline, and government at present that there is little or nothing to be desired. Some time ago it was recognized that more ample bathing and washing facilities were required, and the construction of these much needed accommodations is now under way. A number of commendable changes and additions have been made in her arrangements since she has been at this yard, among the more important of which may be mentioned the enlargement of the galley, the improvement of the berth-deck ventilation, the installation of a new distilling machine, with increased storing capacity for the water, and the construction of ward-room accommodations. It should be stated, also, that she has recently undergone complete renovation.

The marine guard is quartered in a series of communicating compartments on the berth deck forward of the engine room, while the living space for the crew is situated between decks abaft the engine room. All living spaces are roomy and well ventilated. This is particularly true of the space for the prisoners, which consists of one large compartment 84 feet long, 36 feet wide, and 11 feet from deck to deck. With the present number of prisoners (145), this gives an average of about 230 cubic feet of air space to each. All the ship's storerooms are ample and located under this compartment. The hammock and bag room is just abaft of it and separated from it by an open bulkhead, which permits the free circulation of air and secures good ventilation.

The toilet accommodations, lavatories, etc., for the marine guard and the prisoners are located in their respective living spaces. This arrangement is especially necessary for the prisoners, as they are not allowed above deck after dark. The new bathing and washing accommodations for the prisoners, however, will occupy a hitherto unused space on the starboard side of the berth deck forward of the engine room and opposite the marine guard's messing space, which will be used in common by all hands, though at different times.

The brigs are located forward on the deck below the living spaces for the marine guard, and are 15 in number, all but 4 having direct outside ventilation by means of ports. The circulation of air in these four is ample, as, like the others, they communicate with a large central area by ventilating screens placed in and above the doors.

The offices, galleys, and wardrooms are in the central deck houses, while the sick bay and dispensary occupy a supplementary deck house placed outboard in the starboard gangway a little forward of the poop.

This latter accommodation has about half the capacity that it should have, considering the size of the ship and the work and requirements that it might any day be called upon to meet. For obvious reasons it is undesirable to send prisoners to the hospital if it can, with justice to the patient, be avoided, and four bunks can hardly be considered sufficient for the possible sick out of an average prison body of 150.

The ship, from stem to stern, is invariably in a highly satisfactory, cleanly, and sanitary condition. The health of the ship has, on the whole, been good. A reduction in the percentage of sick has been noted since the heavy falls of snow, which have kept most of the prisoners beneficially employed with the work of clearing it away.

There should be a never-flagging effort to find work for them, as it prevents them from brooding over their confinement, and keeps their bodies exercised in the open air. When not otherwise busy, many of them are kept occupied making swabs, mats, and other ship implements, and, in good weather, those remaining on board are kept on the spar deck and put through the setting-up drill twice a day. The physical, mental, and moral hygiene is thus improved and maintained, and by no other means is this desirable result so effectively accomplished. In this regard, therefore, the hygiene of the prison ship is excellent, and the prisoners, on the whole, are well behaved and concontented. Indeed, there is often a noticeable regret on the part of prisoners when the time for their discharges arrives.

The prison food is of excellent quality and sufficient in quantity. The following are sample bills of fare selected at random:

January 1.—Breakfast—Boiled eggs; oatmeal, fresh milk; bread and butter; coffee. Dinner—Roast turkey, stuffing; mashed potatoes; apple sauce; bread and coffee. Supper—Corned-beef hash, bread and butter, tea.

January 6.—Breakfast—Liver and bacon, bread and butter, coffee. Dinner—Roast mutton, gravy; pototoes; bread and coffee. Supper—Frankfurts, potato salad, bread and butter, tea.

January 11.—Breakfast—Beef stew, bread and butter, coffee. Dinner—Vegetable soup; roast beef, gravy; potatoes; bread and coffee. Supper—Codfish hash, bread and butter, tea.

January 17.—Breakfast—Baked beans with pork, bread and butter, coffee. Dinner—Roast veal, boiled potatoes, bread and coffee, pie. Supper—Cold sliced ham, fruit, bread and butter, tea.

The prison clothes for the winter and summer are of a weight properly suited to this latitude and of a most serviceable color, being a mouse gray throughout. Warm gloves and arctic overshoes were supplied to the prisoners for the cold weather, so that they have been amply clothed for the rigors of the season.

REPORT ON THE UNITED STATES NAVAL STATION, TUTUILA, SAMOA.

By H. E. Odell, *Passed Assistant Surgeon, U. S. Navy.*

The medical officer of the *Wheeling*, in addition to his duties on board ship, is the medical officer of the station, quarantine and health officer, public vaccinator, and sanitary inspector of villages.

During the past year considerable grading and filling in has been done, doing away with some of the low-lying swampy ground on the station. This has been very beneficial, as it has prevented mosquitoes from finding breeding places and has avoided the accumulation of filth. The work of filling in has been carried on steadily and will be continued until all objectionable places have been filled and ditches constructed to carry off the superabundance of water.

During the year a new residence has been constructed for the commandant on a small point of land at the eastern end of the station. The elevation is about 50 feet, and the location is such that it usually has the advantage of a good breeze, making it very comfortable.

A new office building and an ice plant are under construction. This represents the building done during the year. All of the buildings have floors too near the ground by 2 or 3 feet. Houses in the Tropics should have a very liberal air space under them, particularly in a place where so much rain falls.

Just beyond the commandant's house is a filled space of level ground that would be an admirable site for a hospital, if one is contemplated for this place. The present building has no accommodations, and when crowded could not take more than 5 patients. It is old, and will in a short time have to be either torn down or extensively repaired. Even then it is not well located, and can only be called a makeshift at the best.

The pesthouse is located on a small island in the harbor. It is about 25 feet square, and is divided into three rooms. The only use to which it is put is the accommodation of men from the ship that have boils, ulcers, etc.

A native guard and band, numbering in all about 70 persons, are doing duty on shore, but are carried on the ship's rolls. They live in barracks built on the beach and report at the hospital at sick call. The barracks are well kept and in good sanitary condition.

These natives are not a very desirable addition to the Navy, as the native is not at all given to work, even of a light nature, and a number report daily at sick call with aches, boils, ulcers, or any trivial ailment that they think may excuse them from the light duty that they have to perform.

During the year about 6,500 visits were made by natives to the hospital for treatment. About 1,400 of these were original visits. Some 3,000 vaccinations were made, 2,500 of which were successful. The island of Manua has between 1,000 and 1,500 people still to be vaccinated, but Tutuila has been well gone over.

During the year Surgeon Spear performed a number of operations—several cases of elephantiasis of the scrotum, 2 of appendicitis, and from 6 to 10 of hernia, 1 at least being a complication of elephantiasis. Several cases of forceps delivery and retained placenta were encountered and successfully handled.

A newspaper has been published at the station for the benefit of the natives, to which the medical officer has contributed an article on some sanitary subject for each number.

Venereal disease is on the increase among the natives, a condition much to be deplored.

The sale of liquor is forbidden, and fortunately the natives do not take kindly to it, so that we escape apprehension in that direction. The natives are afflicted with elephantiasis and various skin diseases, but the more acute diseases of cooler climates are not at present in the islands.

The general sanitary condition of the station is very good and progress is being made steadily toward remedying those defects still existing.

The rainfall has been the largest recorded since our occupying the island, over 199 inches having fallen during the year according to the station rain gauge.

An electric plant is much needed for lighting the station and houses. Oil lamps are not a success out of doors, and in the houses they increase the temperature, which is already greater than comfort demands. This plant could be installed in the building used for the ice machine and would be of the greatest service to the station ship as well as to the station.

REPORT ON THE UNITED STATES NAVAL STATION, POLLOK, MINDANAO, P. I.

By J. P. Traynor, *Assistant Surgeon, U. S. Navy.*

This station was established June 27, 1851, by the Spaniards, and was in active operation for docking, coaling, and repairing of gunboats of the *Panay* and *Albay* class up to the time of its evacuation in January, 1899. It then fell into the hands of the Moros, who destroyed the machinery and some of the buildings. Shortly after this a detachment of United States troops took possession and made some temporary repairs to the buildings. On October 13, 1901, a detachment of 25 marines was stationed here. The station consists of about 625 acres of land fronting on the sea. About one-third of the land is unused and is covered with underbrush and a few cocoanut and fruit trees.

The commandancia, occupied by the commandant of the station, is built on piles. It is a one-story frame building, thatched with nipa, and contains four rooms. It is in fair condition.

The marine barracks is a one-story frame building 40 by 160 feet, built on piles, and has a corrugated-iron roof, about 18 inches above which is a nipa roof. It is well ventilated and fairly cool. The mess hall and kitchen are about 250 feet from the barracks.

The hospital is a one-story building with wattle and plaster walls, nipa roof, and cement floor. It is divided into a hall and three rooms. One room is occupied as an office for the first sergeant of marines, one as a dispensary, and the third, which takes up about half of the building, is used as a ward. A small addition was made at the rear for an operating room, but it is now occupied by four enlisted men as quarters. A porch extends two-thirds the length of the building in the rear. The roof leaks badly, and the building is dilapidated and wholly unfit, under present conditions, for hospital purposes.

The guardhouse is built on the ground, has wattle and plaster walls and a corrugated-iron roof. It is in a dilapidated condition.

The water supply is from wells located inside the station walls and is of good quality. All water used for drinking purposes is boiled and stored in barrels kept thoroughly clean and fitted with light covers and spigots. There is a sterilizer at the station, but it is of no practical use.

The latrines are all built on piles over the water, so that all excrement is carried out to sea.

There have been no contagious diseases either at the station or in the town. There were a few cases of cholera among the natives a few miles inland the first of the year, and a strict quarantine was maintained over the town until about March 1. The few venereal cases that have presented themselves for treatement contracted the disease outside of the town.

The town is situated on a slope which drains into the sea. The general health and sanitary condition is good. Very few merchant ships visit this port, all the shipping, except that of the station, being done by native boats. Earthquakes are of frequent occurrence, but up to the present time no damage has been done.

REPORT ON THE UNITED STATES NAVAL STATION, DRY TORTUGAS, FLA.

By HARRY W. JUDD, *Acting Assistant Surgeon, U. S. Navy.*

The health of the command has been excellent for the entire period, the average sick being less than 2 per cent.

The sewers are now in good condition, the fluctuations of the tide carrying all refuse matter out to sea.

The mosquitoes have not been so troublesome as in past years, owing to the strenuous efforts of the medical department to exterminate them. One barrel of kerosene was used for this purpose, and it is urgently requested that more than this quantity be furnished for the next season.

Early in July a very severe epidemic of dengue began here, chiefly among the civilian employees. Isolation was enforced, and everything was done to prevent its progress. Its relation to the mosquito was carefully noted, but nothing definitely determined. The patients were carefully protected against them and the disease abated. There were no deaths. At present there is a mild epidemic of parotitis. All cases are being isolated.

It is recommended that a suitable hospital building be erected here, as the present quarters are always damp, and the isolation of this station demands a commodious building and efficient service.

REPORT ON THE UNITED STATES NAVY-YARD AND STATION, CHARLESTON, S. C.

By FRED. W. TYREE, *Acting Assistant Surgeon, U. S. Navy.*

On October 7, 1903, a commissioned officer and 30 marines were sent to this yard, there being already at this station 4 officers of the Navy and the commandant.

The marine guard is quartered in tents on the hospital reservation, which is an elevated piece of ground overlooking the navy-yard proper. At the time the marines arrived here the place was nothing more than a dense thicket of brushwood, with mosquitoes and sand flies in abundance. The camp site was cleared, the brushwood burned, and the ground paved with oyster shells. Ditches were dug and the ground thoroughly drained.

The water supply is from two sources, viz, an artesian well, which furnishes water for drinking and culinary purposes, and a pipe line, which conducts water from a large tank just outside of the confines of the navy-yard. Owing to the fact that the well water has to be carted for quite a distance, the tank water is used for washing in order to save labor. Examination of the artesian water shows that it contains but a trace of chlorides and no organic matter. A temporary structure of rough boards over a hole 12 feet long, 7 feet wide by 12 feet deep was erected as a privy 200 feet from the camp. This has been treated with quicklime from time to time. Later, a permanent water-closet having two seats (siphon and trap arrangement) was built. The excreta is carried off through waste pipes to the river. A bath house, containing one bath tub, was also erected. The water-closets and bath house are used by all, with the exception of the venereal patients, who still use the old privy.

There have been 7 cases of malarial fever of the intermittent type and 1 case of the remittent type. Some of these were infected prior to coming to this station. It is to be noted, however, that this navy-yard is in a district that has always been considered malarial, and it is feared that during the coming summer and autumn months many cases of this class will develop. Four cases of venereal disease are under treatment, 2 of secondary syphilis and 2 of gonorrhea. First aid was rendered to two persons employed in the yard. With the exception of the diseases mentioned, there has been no illness of any consequence, and the men seem to be happy and contented. In view of the rapid and thorough draining that is being done here, I am of the opinion that the sanitary condition of the Charleston Navy-yard will be satisfactory in a short time. At present the dispensary at the yard is a tent, in which the sick call is held every morning and all the clerical work done. It is used for a storeroom also, and the hospital steward is compelled to use the same tent for his quarters. This being the case, the tent is neither satisfactory nor large enough. It is recommended that a temporary building be put up large enough to handle the ordinary and usual business that occurs until permanent buildings can be erected.

REPORT ON THE UNITED STATES NAVAL STATION, KEY WEST, FLA.

By G. R. PLUMMER, *Acting Assistant Surgeon, U. S. Navy.*

No epidemic diseases have occurred in the personnel of the Key West part of the station during the year, but dengue prevailed in Tortugas among the marine detachment and civilian employees. No malaria exists, owing to the absence of the *anopheles*. *Stegomyia* are present in countless numbers, and, in view of the history of many epidemics of yellow fever, I have endeavored through the local press and otherwise to enlist the cooperation of the residents in a war of extermination.

No typhoid prevails in spite of the existence of many superficial wells in proximity to pit privies, which they undoubtedly drain. When enteric fever does exist it is said by the local practitioners to be atypical. Intestinal parasites of different kinds play an important rôle in the production of anæmia and indigestion.

The station is daily growing in importance and in the need of a naval hospital. At present the marine hospital receives our sick, but the lack of power to enforce discipline has been discovered by the enlisted men and taken advantage of. The marine hospital is very well supplied with patients from other sources, and there are times when the navy sick taxes its capacity and imposes an amount of medical and surgical work which is hardly fair.

REPORTS ON CRUISING SHIPS.

REPORT ON THE U. S. S. OLYMPIA.

By Lucien G. Heneberger, *Medical Inspector, U. S. Navy.*

Early in the year, after the maneuvers and drills of the three combined squadrons were finished, the *Olympia* resumed her station in Great Harbor, Culebra, where she had been, except during the period covering the evolutions and for ten days at the Christmas holidays, since the early part of November of the preceding year. Profiting by the experience of the previous fall, when such a large percentage of the marines who were encamped on shore was affected with malaria, no men were landed at night except a few signalmen, who were supplied with mosquito netting, and there were few fresh cases of malarial infection, although the ship was of necessity anchored not far from the land. Mosquitoes did not make their way on board in any great numbers, and such as did were not of the *anopheles* variety.

In February a cruise was begun among the adjacent islands of the West Indies, the first place visited being Port of Spain, Trinidad.

When the health officer came on board, in answer to the usual questions as to whether any contagious diseases prevailed on shore, he said an eruptive disease had made its appearance recently which was believed to be chicken pox. Happily, the orders being changed, we remained there only one night and did not communicate with the city except to receive and send dispatches. As is now well known, this was the beginning of quite a widespread epidemic of smallpox at Trinidad, and one of our own vessels calling there not long afterwards became infected, and subsequently landed three cases of this disease at the quarantine station at San Juan.

Pointe a Pitre, Guadeloupe, and Basse Terre, St. Kitts, were next visited. There is nothing of especial interest to note regarding these ports except that venereal diseases are very prevalent and a large number of liberty men were infected, some with a severe type of constitutional syphilis.

At the end of February the ship was at San Juan, P. R. Venereal diseases are even more common at this port than at the above-mentioned places. A very large percentage of the men who went on shore was infected with syphilis, chancroids, or gonorrhea. To such an extent do these diseases prevail that it would seem to be a measure of doubtful expediency for our ships to visit San Juan for the purpose of giving general liberty.

In March a revolution broke out in Honduras, Central America, and the *Olympia* and other available ships of the Caribbean Squadron were ordered there to protect American interests. Headquarters was established at Puerto Cortez, the ship going to other ports along the coast as occasion required. The average temperature of this locality is high, but the town is healthy, the only common disease being malarial fever, which requires heroic doses of quinine to subdue. The mosquito did not, however, seem to be as much in evidence as in many other places visited, and the ship's company was not disturbed by this pest or by malaria. I was told there had not been a case of yellow fever in this neighborhood for five years. The shipping of fruit, and of bananas in particular, is the principal industry. One or two steamers ply weekly between this and the ports of the Gulf of Mexico loaded with bananas. A railway which is intended eventually to extend to the capital runs at present as far as San Pedro, about 30 miles inland, and serves to convey the fruit to the coast.

About the middle of April, the disturbed conditions in Honduras being at an end, this ship proceeded to Pensacola, Fla., to join the vessels of the North Atlantic Squadron and to engage in target practice. The weather was cold and raw, and the officers and men, who were more or less run down and debilitated by long residence in the Tropics, suffered a good deal from catarrhal affections.

Early in May the ship was again ordered south to survey the concession at Guantanamo Bay, Cuba, for a coaling station. Santiago de Cuba was the first stopping place. The city is situated on an elevation overlooking the harbor, and is well placed for good drainage and the complete flushing of all its sewers, but, owing to the meager supply of water, this is at present unsatisfactory. I was told that often the water was shut off altogether at night in the lower parts of the town in order to force it to the higher parts. The water is not only insufficient in quantity to supply the needs of the city, but it is also of bad quality. There are some private cisterns, but their capacity is limited and the water is apt to be bad. At the time of our visit, however, new waterworks were being installed, and by this time the supply of water is probably adequate.

The harbor is landlocked except for the channel which connects it with the sea. This is long and tortuous in its course, consequently the ebb and flow of the tide does not produce sufficient current to carry away the sewage which is being constantly emptied into it. In this respect it is like the harbor of Habana, and, in the course of years, with the growth of the city and an increased population, it is apt to prove a difficult problem in sanitation.

The civil hospital, though built about fifty years ago, is quite up to date in matters of ventilation and equipment. It is constructed on the pavilion plan, the wards opening on a large central patio or court. Each ward is separated from the other by quite a space, is of one story in height, and is ventilated by three large windows on the two sides placed opposite and by a large door opening on the patio. Of course in this climate these can be kept open almost the entire year. There are ten such wards, three on each side of the court and two at the ends, with a capacity of twenty-six beds each. Twenty-five beds are in reserve for pay patients, the charge being $1 to $1.25 per diem. The remainder are for charity patients.

On May 27 the ship proceeded to Guantanamo Bay, which lies about 40 miles to the eastward of Santiago, for the purpose of taking up the work of surveying a concession to the Uuited States for a coaling station and naval base. This concession embraces 2,880 square acres, of which 1,960 are land and 920 water. The bay is about 10 miles long and varies in width from half a mile to 4 miles. The surrounding land is low and flat, interspersed with numerous salt marshes and sand flats, except on the east, where it is higher, a range of hills running down to the coast and terminating at the entrance to the harbor. The Guantanamo River runs in a general direction north and south and empties into the bay on the west side just inside the entrance. Seven or 8 miles from its termination it forks, one branch running to the west, the other to the northeast. The water of the river for quite a distance from its mouth is not potable. As far as the American boundary line extends, a distance of about 4 miles, the water is strongly impregnated with salt; indeed, as high up as 6 or 7 miles it contains about 50 grains of sodium chloride to the gallon. Above the forks, particularly in the eastern branch, it is comparatively free from salt.

One of the greatest problems to be met in building the naval station at Guantanamo is to provide an adequate supply of fresh water. None exists on the concession. There is an excellent supply of water at Guantanamo city, about 15 miles distant, coming from the neighboring hills, with the great pressure of 124 pounds to the square inch, and this could be piped to the naval reservation; but it would have to come through an alien country, which in time of war would be decidedly disadvantageous. I understand that at the time of writing, boring for water is to be tried, and, if successful, wells will be sunk; but from the geological formation it seems doubtful whether water can be found in sufficient quantities to supply the needs of the station.

There are two rainy seasons in this locality, first during the months of April and May, followed by a dry season until fall, when the severe rainy season sets in. Gnats and sand flies are numerous and very annoying, and mosquitoes abound everywhere. They are a veritable pest and make life ashore almost unbearable. The officers and men in the surveying parties were obliged to protect their faces and necks with mosquito netting tied around the hats while at work, and rub kerosene on other exposed parts. Though frequently bitten in spite of all these precautions, there was no malarial infection. To be sure they returned to the ship before sunset each day, but those who have had an opportunity of investigating the kind of mosquito most prevalent here say the *anopheles* is comparatively rare.

The experience of this surveying party demonstrates that hard and continuous labor can be done even in the heat of the day in this region without any great damage to health. The men would come aboard at the close of day, frequently wet to the skin either from wading through the salt marshes, from showers, or from perspiration, and yet at the end of the work they were all in seemingly fair state of health. One officer, in particular, whose physical condition was such as to make his going in the party at all of doubtful expediency, not only bore his part well but at the end was in much better condition than at the beginning.

The end of July found us on the coast of Maine to engage in the summer maneuvers. The sudden transition from the heat of the Tropics to the cold and foggy weather prevailing at the time here was productive of a great many catarrhal affections.

After the summer maneuvers were finished the ship went to the navy-yard at Norfolk, Va., to go into dry dock for repairs.

In the latter part of November and during December a mild epidemic of catarrhus epidemicus prevailed on board this ship and at the navy-yard, and quite a number of cases were admitted to the sick list.

The end of the year finds the ship in Panama waters, having arrived at Colon December 22. Since then she has been at sea most of the time, going from port to port, and there has been but little communication with the shore. There have been few, if any, changes made in the ship affecting her sanitary condition since my last report. She remains clean, well ventilated, and healthful. The berthing place of the crew is too small for her complement, but in the Tropics, where most of the time is spent, this evil may be, and is, very much mitigated by many of the men sleeping on deck.

REPORT ON THE U. S. S. KENTUCKY.

By **Edward H. Green**, *Medical Inspector, U. S. Navy.*

The *Kentucky*, a first-class battle ship, was built at Newport News, Va., and put in commission at that place May 15, 1900.

The ventilating system of the *Kentucky* is excellent and has but few defects. The engine and fire rooms are so well ventilated, by an independent system of blowers, and the hot air has such facilities for escaping that the temperature, even in tropical cruising, is never higher than 110° as a maximum in the engine room, and seldom as high as 140° in the fireroom. During the three years and a half which the ship has been in commission there have been but two cases of heat prostration recorded in the engineer's force, one of which occurred during a forced-draft speed trial, and the other being the case of a man who had a very poor physique. The dynamo rooms are equally well ventilated. The supply system prevails throughout the greater part of the ship, and is accomplished by large Sturtevant blowers driven by 12-horsepower electric motors. The air is changed at least once in every three minutes, and in some compartments as often as once every minute. The closets and bathrooms, and the storerooms on the splinter deck aft are ventilated by smaller blowers driven by 8-horsepower electric motors, and they act on the "exhaust" system. The air in the closets is changed every minute and a half. An objection, which has often been raised, is that in very cold weather the air from the supply system is often so cold that the ventilators have to be shut off.

The ship is well heated throughout. The leads to the different steam coils are arranged in the different circuits so that it is easy to control the temperature of different parts of the ship. The radiating surface is such that there is about 1 square foot to every 100 cubic feet of air space. In the cabins and wardroom there is 1 square foot of radiating surface to every 80 cubic feet, and on the berth deck about 1 square foot to every 120 cubic feet.

The lighting of the ship is very satisfactory. No injurious effect has been noted from the constant use of the electric light.

The average complement of officers and crew for the year has been 690; at one time there were 723 on board, but that lasted but a short while, as they were distributed to other ships.

The berthing compartments for the crew are as follows:

	Cubic feet.	Berthing billets.
Gun deck	55,200	421
Berth deck:		
Forward	13,436	166
Aft	5,580	36

The splinter deck has also berthing billets for 78 men, and the protective deck has billets for 45, but these are only used in emergencies. The chief petty officers occupy a separate compartment with folding cots. In warm weather many of the crew sleep on the superstructure deck and on the forecastle, under cover.

The bathing facilities for the crew should be increased. For the deck force complement of 420 men there are 5 salt-water faucets, from which the crew can draw water with buckets, and 2 salt-water showers, in a very small room. When cruising, in warm weather particularly, these facilities are inadequate and should be doubled. The engine-room force of 109 men has 25 fresh-water faucets (12 of which are over basins and the rest arranged for drawing water with buckets) and 3 salt-water showers, in a small wash room. These showers should be placed in a separate room. The chief petty officers have 6 stationary washstands and 1 portable tin bath tub.

The bathing arrangements for the officers are ample.

Where cleanliness is such an important factor as regards health, the crews should be given better facilities for bathing.

The general mess system has been in vogue on this ship during the past year. It has worked very satisfactorily. The crew has better food and a greater variety, which is better cooked and better served than under the old system. It is safe to say that the general-mess system has passed the experimental stage and is a pronounced success.

The brig is composed of two separate cells situated on the port side forward of the dispensary. They are well ventilated and have sufficient cubic air space.

The arrangements for the care of the sick are commodious, and under ordinary circumstances are ample.

In the original plan of all battle ships, however, there should be a different arrangement of the sick quarters. Apart from the sick-bay proper there should be an operating room fitted up with all the modern conveniences for performing operations aseptically. There should be a separate room with fixed cots for an infectious ward, where cases could be properly isolated. These changes and alterations could not very well be made in this ship, owing to the lack of space.

The health of the ship's company for the year has been very good. There has been no epidemic disease.

The ship spent a great deal of time in Chinese ports, and most of the venereal cases developed from those visits. In my opinion a great deal could be done in the way of prophylaxis to guard against the development of these diseases. Every man going on liberty should be instructed (if he has had sexual intercourse while on shore) to report at the sick bay, where antiseptic remedies such as bichloride of mercury and a calomel dusting could be applied to the anterior portion of the urethra.

Should the crew in time see the importance of this, I think they would not hesitate to report for the prophylactic treatment, and it would mean an abortion of many of the gonorrhea cases and some of the cases of syphilis, where the lodgment of infection is in the urethra.

It is gratifying to note that there was not a single admission during the year for alcoholism. The general morale of the Navy has improved greatly in that respect in the last few years.

REPORT ON THE U. S. S. KEARSARGE.

By S. H. Dickson, *Medical Inspector, U. S. Navy.*

The complement has been subjected to a variety of climatic conditions during the past year, and it is satisfactory to note that the general health has been good. There were 2 deaths, 1 from cardiac syncope and 1 from broncho-pneumonitis. Tonsillitis has been of frequent occurrence on board, having been responsible for 261 sick days. A large proportion of cases occur among those who have hypertrophied or ragged tonsils, predisposing to infection, and it would be to the greater efficiency of the service if more care were exercised by the examining medical officer in rejecting such candidates for enlistment. To lessen the possibility of this and other contagious disease being transmitted to the crew by means of the common drinking cups, I have furnished a weak solution of formalin in which these vessels must be immersed after each use. Myalgia is a common affection and is very rebellious to treatment, while rheumatism, acute and chronic, caused 118 sick days during the year.

Injuries head the list in the number of sick days, having a total of 894, but for the most part these were not of a serious nature. Venereal diseases, with their sequelæ, are next in order, with a total of 852 sick days. Speaking of this class of diseases, I would mention a singular custom in vogue on board the Dutch man-of-war *de Ruyter* which was met with at Ponce. Whenever enlisted men return from liberty, they repair to the sick bay, where each and every one receives an antiseptic wash and an antiseptic urethral injection. Although the time between exposure and the procedure seems too long for it to have any prophylactic value, the medical officers of the *de Ruyter* are convinced to the contrary and believe it succeeds in decidedly diminishing the number of venereal cases.

Diseases of the cutaneous apparatus, as abscesses, furuncles, carbuncles, ulcers, and the like, have 441 sick days to their credit, and while I am aware of such causative factors in their production as food, change of diet, climatic conditions, etc., I also believe that the lack of adequate bathing facilities for our large crew is also responsible.

In the bow compartment, port side, just abaft the men's head, there is a small wash room for the crew which must accommodate 500 men. It contains two salt-water showers and a trough over which are 5 faucets or taps. The accommodations are so scant and limited that it has practically been abandoned by the men, who revert to the old system of buckets and hose for bathing purposes. In the firemen's wash room, for a complement of 120, there are two showers; and there is but one fresh-water shower for 19 wardroom officers, and the water before reaching this single shower is so hot in the Tropics as to be almost unbearable. For 19 chief petty officers there is 1 shower and 6 basins. Manifestly these facilities for bathing are far from sufficient, and this important matter should be considered when a fitting opportunity occurs for remedying it.

The details of the excellent ventilating system for this ship have been so elaborately given in previous reports that there remains little to be added. It has been improved by a system of ventilation for the magazines. Attention to the ventilation of the men's head is invited. The exhaust is so weak as to permit a decided malodorous condition to exist, especially when the air ports have to be closed at sea. There is no ventilation in compartments A21, A13, and A14, all of which contain provisions. These should be connected with the general ventilating system of the ship. A14 has a steam pipe running through it, which is far from advisable in a place where canned meats, vegetables, and fruit are stored.

This ship has a sick bay containing eleven comfortable cots, with an adjoining bathroom, which, while small and encumbered with a cofferdam, large pipes of the flushing system, etc., is sufficient. The crying need is an operating room. Without personal experience no one can understand the annoyances and difficulties attendant upon operating in a small sick bay. Preparation for an operation, etherization, with the struggles and cries of the patient, the use of the knife, subsequent dressing of the wound, etc., must all take place here, within sight and sound of all who may be sick and confined to their cots. Embarrassing to the surgeon, and handicapping him in his work, it must be actually injurious to many patients. This has been brought forcibly to my attention in several recent operations where etherization was necessary. Besides, it is impossible to more than approach aseptic conditions in such a locality. The almost daily opening of buboes, abscesses, etc., must disseminate organisms, and the healing of wounds without suppuration is hardly to be expected. In addition, sick call has to be held in the sick bay on this vessel, and questions and answers and exposure of person are both heard and seen by the neighboring sick, so that there can be no absolute privacy. At present we have no suitable cabinets for surgical instruments and no place to put them if they were supplied. The medical storeroom is very small and badly arranged.

The present method of using the flame of a large alcohol lamp for the generation of heat in sterilizing instruments is expensive, attended with danger, and slow. The lamp should be replaced by an electric heater, since the supply of electricity is constant and abundant. A small steam sterilizer, for use in sterilizing the clothing of men affected with tinea trichophytina and scabies, should be installed.

The necessity for hospital ships as permanent additions to our fleets is urgent. Last year at Culebra, and this year as well, a ship of that character was much needed as an integral part of the combined squadrons. The uncertainty of passage to the naval hospital at San Juan, the time consumed in getting over the 60 miles, the limited accommodations for very sick men on the small vessels making the trip, are among the many reasons for the presence of such a ship. Men run down by the life on board ship, needing change of food or environment and building up, could be received on board a hospital ship and be restored to their respective commands in a comparatively short time instead of being sent to a hospital or home. A hospital ship provides a modern means for the immediate and safe performance of surgical operations of grave nature, such as would be dangerous to the patient on a battle ship. I can safely say that not less than 50 cases would have been fit subjects for transfer to such a ship during the year had such existed, to their very great benefit and to the increased efficiency of the service.

In conclusion, I have to refer to the most excellent sanitary condition of the ship. Her cleanliness is above criticism, and an untiring effort is made to keep her in the most healthful condition. The great heat aft, in the living rooms inside of the armor belt, and in the ward rooms, averaging not less than 90° in the Tropics, could, to a very great degree, be avoided if an electric steering gear was substituted for steam. Such a temperature, combined with the other conditions of life on a battle ship, tends to lower the vitality of those constantly subjected to it.

REPORT ON THE U. S. S. NEW YORK.

By D. O. Lewis, *Surgeon, U. S. Navy.*

During the year the health of the crew has been excellent, and no contagious diseases of a serious nature have prevailed on board.

The quarters occupied by the marines are excessively hot in the Tropics, owing to the presence there of a blowing engine and the steam pipes necessary for running the same.

The ventilation of the ship, both by natural and artificial means, is excellent. Each officer's room and most of the compartments are furnished with a louvre, having a diameter of 6 inches and offering, when open, an area of 14.13 square inches for the passage of air into the compartment. Four sturtevant blowers supply fresh air in abundance.

During the year there were 30 cases of mumps, the first case appearing soon after the ship left Bremerton, Wash., at which place cases of the disease had been reported. The first case appeared July 13, and the epidemic disappeared December 7, 1903. Of the 30 cases occurring, 12 were transferred to the naval hospital at the navy-yard, Puget Sound, and the others, 18 in number, were treated aboard ship. The majority of the cases appeared to have originated on the starboard side of the half-deck, and, as many of the cases emanated from the marine quarters, that compartment was closed, sealed, and thoroughly cleaned, all of the contents being submitted to fumigation with formaldehyde gas.

During our stay at Bremerton the vessel was thoroughly overhauled. A new set of evaporators was put in, and the character and amount of water furnished has been excellent.

The water-closets, bathrooms, and urinals for the wardroom officers are situated just abaft the wardroom. Each bathroom is fitted with a shower. Fresh and salt water, either hot or cold, is furnished. The water-closets are of good pattern and are remarkably free from any odor.

The water-closets, bathrooms, and urinals for the junior officers are situated amidships on the starboard side, while those for the warrant officers are in a similar position on the port side of the berth deck, and are in a satisfactory condition. The men's water-closets are on the gun deck, forward, and are kept clean by a continuous flush of salt water. They are well ventilated and lighted, and are frequently disinfected with chlorinated lime.

The medical storeroom is situated in the forepeak just below the gun deck, and is sufficiently large to accommodate the medical stores.

The sick bay, situated forward on the berth deck, is well ventilated and lighted. It is furnished with folding bunks which are easily kept clean and which are most comfortable. Just abaft the sick bay on the starboard side is a room containing water-closet, bath tub and wash basin. On the port side of the half-deck there is an additional sick bay, well lighted, but somewhat deficiently ventilated, there being one air port as the only means of ventilation. This sick bay is only used when it is advisable to isolate a patient suspected of contagious disease.

At general quarters the junior officers' mess room on the berth deck has been selected as a primary aid station for the wounded. The very large hatches leading from one deck to another make the transportation of the wounded to this station easy of accomplishment.

REPORT ON THE U. S. S. BROOKLYN.

By F. ANDERSON, *Medical Inspector, U. S. Navy.*

This ship was commissioned on June 5, 1903, at the New York Navy-Yard, having undergone various repairs and refitting since her previous cruise. No material changes, however, were made in the ship, and she is in all essential respects the same as when first commissioned.

During the past seven months the ventilation of the ship has been sufficient, the temperature of the living spaces and firerooms has not been, excessive, and her general sanitary condition has been good. No severe weather, however, has been encountered and no cruising has been done in tropical climates, hence there has been no severe test of the ship from a sanitary standpoint.

The ice plant is insufficient for a ship of this size. It will not produce ice, keep the temperature of the cold-storage room low enough to preserve provisions, and cool the water of the scuttle butt all at the same time, and an ice plant that will not do these three things can not be considered adequate to the needs of the vessel.

The bathing facilities for both enlisted men and officers are ample and contribute much to the comfort of ship life.

It would be an additional comfort as well as an important sanitary measure if a steam laundry were added to the ship's equipment. The sending ashore of all bed linen and clothes to be washed increases the danger of bringing infection on board ship, and it is perhaps probable that in this way smallpox was recently introduced. The water for cooking and drinking purposes is ample and of good quality. Only that distilled on board ship has been used.

The sick bay is located in the extreme bow of the ship, and consists of 3 compartments and a bathroom. The largest and farthest forward of these compartments is used as a hospital for patients who are confined to bed. In it there are 12 collapsible berths. At the time of going into commission 6 more of these berths were set up in one of the other compartments, but as this left no room for examining patients, they were removed. This form of berth has proven very satisfactory, and constitutes a firm and comfortable bed. It occupies as little space as any with which I am familiar, and it offers a decided advantage in not containing any woodwork. This feature, in connection with the fact that it can be readily taken down, permits of its being thoroughly cleansed and disinfected. A berth can be unshipped, folded, and removed from the sick bay within two minutes and set up in the same space of time. The readiness with which a berth can be removed permits of the clearing out of the sick bay at any time for the purpose of disinfecting, cleaning, or painting. Finally, the device by which the ends and sides of the berth can be let down facilitates the handling and dressing of the patient and the changing of bed linen with the least possible disturbance of the occupant of the berth.

The smallest of the three compartments contains an operating table and is kept as much as possible for operating purposes and for the dressing of surgical cases.

There are two medical store rooms forward of the sick bay, one beneath the other. They are commodious and easily accessible.

The proximity of the cells for prisoners to the sick bay is objectionable, for in the space between the cells and the sick bay bulkhead court-martial prisoners and men under the sentry's charge are kept. Men coming from liberty under the influence of liquor are also quartered here. Hence there is apt to be a great deal of noise in this location, which disturbs the sick.

The general health of the crew has been good, but the average physique is light owing to the youth of a large proportion of the enlisted force. There have been no deaths among the ships' company and no accidents of a serious nature. One case of gunshot wound occurred, which is of interest, more particularly from the manner in which it was received. While the ships were steaming in column and firing at target with small caliber rifles, a bullet, .22 caliber short, fired from a vessel about 150 yards astern struck an officer who was standing on the quarter-deck of the *Brooklyn*, it having first passed through a canvas screen, and, entering the posterior surface of the thigh just below the gluteal fold, passed through the entire thickness of the limb, internal to the femur, and appeared anteriorly beneath the skin. The bullet was readily extracted and the patient made a good recovery. The interesting feature of the case is the fact that a bullet of this caliber and with such a small charge should have had the force at that distance to inflict so deep a wound.

There have been several cases of contagious disease among the crew. At New York a case of scarlet fever developed in a man who had arrived the day before in a draft from Boston. This man was at once transferred to the hospital, and precautions were taken against the spread of the disease. No other cases occurred. During the first six weeks of commission several cases of scabies and mumps occurred and, without much doubt, could be traced to training ships. In October last, while lying off Beirut, a case of smallpox developed. As soon as the eruption appeared the patient was isolated and was transferred to a hospital on shore. His bedding was destroyed and the sick bay disinfected with formaldehyde. All the other occupants of the sick bay and everyone who had come in contact with the patient were vaccinated, as well as the men who slept in contiguous compartments, about 60 in all. Thirty-five days after the removal of this case from the ship, 2 more cases developed on the same day. These also were at once removed and the disinfection of all the compartments on the berth deck was carried out as far as practicable. As some of the compartments proved not to be air-tight however, the disinfection was not as thorough as could be desired. The clothing and bedding of all the crew were aired and sunned. No cases have since developed and, as nearly a month has elapsed since the removal of these last two cases, no further appearance of the disease is anticipated. In the meantime all the ship's company, officers and men, have been vaccinated with fresh virus, in tubes obtained from Switzerland and Alexandria, Egypt. No liberty had been granted at Beirut and none of the men who contracted smallpox had been on shore. The infection, therefore, must have been brought on board ship, perhaps in the wash or by curio dealers. As the last two cases occurred so many days after removal of the first case it is reasonable to conclude that a fresh introduction of the infection took place.

When the *Brooklyn* went into commission she was attached to the North Atlantic fleet, and on June 25 sailed with the battle ships for the Azores. From the Azores she proceeded to Lisbon and there became the flagship of the European squadron. After short stays at Gibraltar, Villefranche, and Genoa, she arrived at Beirut, Syria, on September 4, where, with the exception of an absence of two weeks in December for target practice, she has remained ever since.

The men have been granted liberty at the Azores, Lisbon, Villefranche, and Alexandria. For sanitary and other reasons no liberty has been granted at Beirut, hence for a period of a little over three months the men have been unavoidably kept on board ship. Such prolonged confinement usually results in greater dissipation and indulgence when the men do get ashore and is not conducive to the physical welfare of the crew.

The health of Beirut is said to be good, but accurate information on this point is difficult to obtain. It is certain that smallpox is prevalent, and is probably on the increase. Upon arriving at Beirut we found a five days' quarantine in operation against all Egyptian ports on account of the plague; but this has been recently removed, as the disease in Egypt has either disappeared or is limited to sporadic cases. Cholera had existed at Damascus and there was a quarantine of ten days against that neighborhood, but this has also been raised on account of improved conditions. At the present time smallpox appears to be the only disease against which precautions are necessary.

REPORT ON THE U. S. S. MAINE.

By N. H. Drake, *Surgeon, U. S. Navy.*

The *Maine*, a twin-screw first-class battle ship of 12,500 tons displacement, was built at Cramp's shipyard, Philadelphia, Pa., and placed in commission at the navy-yard, League Island, Pa., on December 29, 1902. As a habitation, the *Maine* may be described as having a hold and seven decks, namely, the platform, splinter, orlop, berth, main, upper, and bridge decks. The hold and lower three decks contain the engine rooms, boiler rooms, and nearly all the coal bunkers, the steam steering room, dynamo rooms, torpedo room, magazines, shell rooms, ammunition passages, water tanks, and all the storerooms of the ship. Strictly speaking none of these are living spaces and will not be considered in detail, although a certain percentage of the crew, storeroom keepers, and men of the engineer's force, daily spend several hours below in compartments without natural ventilation and entirely dependent upon artificial light. Some few of the men sleep in an after compartment on the splinter deck and in the ammunition passages, but practically the living spaces of the ship for officers and crew are the berth deck, the main deck, and the after portion of the upper deck.

Berth deck.—Beginning aft, the admiral's quarters are located on the port side, and comprise a forward cabin, an after cabin, a stateroom, and a bathroom. The quarters for the captain are on the starboard side, comprising a cabin, stateroom and bathroom. The admiral's forward cabin has air capacity of 3,024 cubic feet, and the captain's cabin has 2,450 cubic feet. The dimensions of the staterooms and bathrooms are the same on either side, viz, 750 cubic feet for staterooms and 494 cubic feet for the bathrooms. These quarters are well supplied with natural light and ventilation by hatches and several air ports, the hatches opening into the forward cabin on either side. Located centrally, just behind the after turret, is the wardroom mess room with an air capacity of 3,922 cubic feet, and provided with natural light and ventilation by a large skylight in the center of the room. There are sixteen rooms for wardroom officers on this deck, ten of which (five on either side) are abaft the casemate bulkhead and are entered from a narrow fore and aft passage between the rooms and the mess hall and turret. These rooms are of small dimensions and each one has an air port 11 inches in diameter. The remaining six rooms, three on either side, are inside the armor belt, with no means of natural light and ventilation, but have a much larger floor area than the others. From their proximity to the evaporator room they are very hot and uncomfortable when the ship is in a warm climate. From their position they are practically like cells, into which it is impossible for a direct ray of sunlight to enter. From a sanitary standpoint this condition is very undesirable, and it is recommended that openings be cut in the deck over each room, and deck lights or prisms introduced to obviate the necessity for constant use of entirely artificial light. The living spaces for the crew on this deck are in compartments A 140, A 143, A 144 forward of the casement bulkhead, a compartment on the port side within the casemate for machinists, and another on the starboard side for chief petty officers. Compartment A 140 has an air capacity of 11,448 cubic feet, and sleeping billets for 53 men. This allows 216 cubic feet for each man. A 143 has air capacity of 5,058 cubic feet, and accommodates 15 men, with an allowance of 337 cubic feet to each person. This compartment contains the ice machine, which accounts for the small number sleeping in it. Compartment A 144 also contains 5,058 cubic feet of air, with allowance of 266 cubic feet to each of the 19 occupants. These three compartments are all poorly ventilated by natural means. The machinists' quarters allow 116 cubic feet to each of the 12 occupants. With the door open there is a little natural light and air from the deck; but with it closed they must depend entirely upon artificial light and ventilation. The room occupied by the chief petty officers has 1,080 cubic feet capacity and, with eight occupants, gives 135 cubic feet to each one. The conditions as to light and ventilation are the same as in the machinists' quarters, and in my opinion they are not properly ventilated. The supply of fresh air is sufficient, but there should be some more direct and better means for the exit of foul air. In addition to the spaces already mentioned, there are about 38 other sleeping billets on this deck in the narrow passages and spaces about the conning tower on either side. The forward compartment on this deck is the sick bay, which will be described under another heading.

Main deck.—The living spaces on the main deck are within the superstructure, and there are billets on this deck for 522 of the crew. The living rooms, mess room, and pantry of the warrant officers are also on this deck, and are located amidships near the after end of the superstructure. They have four single rooms and two double rooms, which, with one exception, are fairly well supplied with natural light and ventilation. Their mess room, pantry, and all the rooms are provided with artificial ventilation. The remaining portion of this deck, the water-closets for officers and crew excepted, has no artificial ventilation; and the natural means, which consists of twelve gun ports, four large square ports, and six hatches opening to the deck above, are insufficient when the ship is at sea, as the gun ports and square ports are always closed, and frequently the hatches are covered over, especially in wet weather. It is sometimes necessary to close the door leading to the quarter-deck, and when all these conditions exist at the same time the deck must necessarily become dark, the air vitiated, and the sanitary condition impaired.

Upper deck.—The living spaces on this deck are for the chief of staff, three wardroom officers, and the junior officers. The chief of staff has a stateroom and bathroom located centrally near the after end of the deck. The rooms for the wardroom officers are on the port side, with ample floor area, and are well ventilated and lighted by natural means. The junior officers have three double rooms, a mess room, and pantry, which are located on the starboard side and centrally near the after end of the deck. Two of the rooms are well ventilated, but the other—an inside room—is not, and depends upon a small skylight for air and light. The mess room is well ventilated. The pantry is very small and poorly ventilated, and it is recommended that an opening be made in the deck overhead for a ventilating duct with movable cowl. A similar arrangement has been made to ventilate the quarters of the chief of staff, on the opposite side of this deck. The decks of the living spaces are covered with linoleum. This is securely fastened to the deck by glue, and whenever necessary shellac is applied, thus making an impervious coating, which is easily kept clean and dry.

Sick quarters.—In the construction of this ship the time-honored custom of locating the sick bay at the forward end of the berth deck has been observed. It is known as compartment A 139 on the plan of the ship and has an air capacity of 4,224 cubic feet. There are seventeen fixed cots to accommodate the sick. Eight of these are in double tiers in the center and the others are on the sides of the compartment. Four of the central cots are so arranged that they can be unshipped and used for transporting sick or wounded. All of the others are made so that they can be folded when not in use. The frames of the cots are brass tubes, 1¼ inches in diameter, covered with aluminum paint. The bottom is of woven wire, the rigidity of which is overcome by springs at the ends. The meshes in the bottom are 4 inches square. For natural light and ventilation the sick bay has four air ports 11 inches in diameter, but these can never be opened at sea, and frequently have to be closed when at anchor. To provide artificial ventilation, there are six air ducts, each 4½ inches in diameter, opening into the compartment. The means for heating and lighting are four radiators, three fixed lights (16 candlepower), one portable, and one battle lamp. At the forward end there is a small closet for the storage of hospital linen. For the convenience of the sick and hospital attendants there is a stationary porcelain wash basin with hot and cold water connection. The floor is covered with linoleum which is frequently shellacked, and the sides and ceiling are protected by cork paint, which is difficult to keep clean, and by reason of its rough surface offers a good resting place for the micro-organisms of infectious disease. From a sanitary standpoint this should be removed and a coating of white paint having a smooth glazed surface applied.

A very objectionable feature of the sick bay and its location is that the discharge pipes of the crew's water-closets, which are in a compartment overhead, lead into and down the sides near the after athwartship bulkhead. Another smaller pipe from the urinals leads into and through the bathroom. These pipes become obstructed at times and when the screw plugs are opened in the sick bay or bathroom to admit of cleaning the pipes, the stench of fecal matter and urine is intolerable and prejudicial to the health of the sick and attendants.

The operating and dressing room is on the port side abaft the after bulkhead of the sick bay. It is of ample dimensions, with two air ports and two doors, one communicating with the sick bay and the other opening into compartment A 140. The latter is very convenient for the admission of an injured man on a stretcher. The floor is of stone and cement-mosaic pattern. The room has one radiator, two fixed lights and one portable light, and artificial ventilation is supplied by one air duct 3½ inches in diameter. There is a porcelain wash basin with hot and cold water connections, but the apparatus for the hot-water supply has been out of order since September and can not be repaired on board. This same apparatus supplies hot water for basin in sick bay. In addition to the operating table the room contains a metallic cabinet for instruments, a metallic stand provided with shelves for basins, trays, jars, dressings, etc., a glass table for sterilized instruments and dressings, and a frame holding three large glass jars with rubber attachments for standard irrigating solutions.

The bathroom is on the starboard side and is entered from the sick bay. It contains one metal bath tub, porcelain lined, one water-closet (Richmond type), which discharges overboard above the water line by pumping, and a marble stationary wash basin with salt and fresh water supply. The bath tub can be supplied with either fresh or salt water, which is heated by a steam pipe leading into the tub. The floor of the room is of stone and cement. It is heated by a small radiator, and ventilated and lighted by one air port. There is also an air duct 3½ inches in diameter for artificial ventilation.

The dispensary is just abaft the bathroom in compartment A 140. Its natural ventilation is by means of a door from the compartment and one air port. This is supplemented by one air duct 4½ inches in diameter leading into the room from the main duct supplying the sick bay. The room has one small radiator. It has two incandescent 16-candlepower lamps, one fixed, the other portable. Near the door is a wash basin with cold-water connections. There are a sufficient number of drawers and bottle racks to contain and secure such articles as are usually kept in the dispensary for storage and daily use in dispensing, but the floor space is entirely too small for comfort in working. The dimensions are but 9 feet from the door to the base of the cofferdam outboard, and the width of the floor space between the drawers is only 23 inches. For convenience in working, the room should be enlarged.

In this connection it may be well to say that at general quarters the surgeon, hospital steward, and two apprentices are stationed in the sick bay with the dressings laid out and table prepared in the operating room. The junior medical officer and two hospital apprentices occupy a temporary dressing station in the warrant officers' mess room on the main deck. If the ship were in action it would be necessary to select some place within the casement as a central dressing station, as the sick-bay compartment is unprotected. The ship has two stretcher boards for transportation of the wounded, which can be easily carried along the decks and lowered through hatches when taking an injured man to the sick bay.

Storerooms.—The medical storeroom is on the platform deck in compartment A 13 and communicates by a hatch with a lower storeroom in the hold. It is outboard on the starboard side and very inaccessible to the sick bay. The lower room is used for the storage of dressings and bulky packages. In the two rooms there is ample space for the needs of the department, and so far no article has deteriorated from heat or moisture. There is a locker in the upper room, in which is stored the alcohol and all the liquors. The room is well ventilated and lighted by artificial means, and is always dry and free from foul odors. Nearly all the storerooms of the ship are on the platform deck or in the hold, and in the regular weekly inspections have been found in good condition. They are sufficiently lighted and ventilated.

Ventilation.—In this ship the main deck living spaces are almost entirely ventilated by natural means. This is accomplished by doors, gun ports, square air ports, and hatches, and in fine weather and when the ship is in port a sufficient amount of air is admitted, but when at sea with all the gun ports and air ports closed and hatches covered, as they generally are when it is raining, the ventilation is far from satisfactory. The warrant officer's quarters on this deck, in addition to the natural means, have the supply system of artificial ventilation. The officers' water-closets on this deck are ventilated by the exhaust system. On the berth deck, the quarters for the admiral, captain, wardroom mess room, staterooms abaft the casemate and the compartment forward the casemate bulkhead have natural ventilation through air ports, hatches, and skylights. When at sea all the air ports are closed, and, on account of the low freeboard aft, the deck is frequently awash even in a moderate sea, and it is then necessary to batten down all hatches and skylights abaft the casemate, thereby cutting off all natural ventilation from that part of the ship.

The berth deck and all parts of the ship below, with the exception of the boiler rooms, coal bunkers, orlop deck, and a few small storerooms in the hold, have artificial ventilation. In describing this system it will be convenient to divide the ship into three sections. The forward section has two Sturtevant blowers, 48 inches in diameter, located on the splinter deck, inboard, about frame No. 25, which supply all compartments forward of bulkhead No. 30. Their intake is abaft the forward turret. The crew's water-closets have two blowers, 15 inches in diameter, located at the forward end of each closet, which run on the supply system. Their intake is an overhead pipe leading from ventilator on the forecastle. In the amidships section there are two supply and two exhaust blowers for the dynamo rooms, two supply blowers on the berth deck, four supply blowers for the engine room, one supply blower in the evaporator room, and two exhaust blowers for the officers' water-closets. The dynamo supply blowers are 48 inches in diameter and are located one in each lower dynamo room. They supply all dynamo rooms and air spaces between dynamo rooms and magazines. Their intake is amidships abaft the forward turret. The dynamo exhaust blowers are located on the berth deck abaft the petty officers' wash room and are 30 inches in diameter. They discharge abaft the conning tower on the bridge deck, and the intake is in the upper dynamo room. The berth-deck blowers, 48 inches in diameter, are located at frame No. 60, outboard on either side. The intake for each blower is forward of the after bridge. They supply the amidships section of the splinter deck, the berth deck inside the casemate, including the ward room officer's quarters and compartments for chief petty officers in this section, and the warrant officer's quarters on the main deck. This is an extensive area to ventilate and necessitates a long lead of the ducts from the blowers to the forward casemate on the berth deck. In consequence of the friction from the length, unavoidable curves and angles of the berth-deck ducts, the velocity of the air current is apparently diminished when compared with that from the forward blowers, and it would add much to the comfort of every one living in this section of the ship if these blowers were of a larger diameter. The evaporator room has one 36-inch blower with intake forward of the after-bridge. The hot air from the evaporator room is exhausted through openings in the mainmast. The blowers for the forward engine room, 48 inches in diameter, are located at frame No. 64, and the intake is on the after-bridge. The two blowers supplying the after engine room are each 54 inches in diameter and located at frame No. 70. Their intake is on the quarter deck abaft the casemate. The exhaust blowers for the officers' water closets are 12 twelve inches in diameter, and are located on the bulkhead outside the closets, port and starboard, respectively. There is an intake for each stall. The after section of the ship has two blowers, 48 inches in diameter, located at frame No. 68 on the splinter deck. Their intake is on the superstructure bulkhead forward of the after turret. They supply the quarters of the admiral and captain, wardroom mess room, quarters abaft the casemate, and the after compartments of the ship from hold to berth deck, inclusive. The tiller room has a 20-inch blower, which exhausts the air from this room and the steam steering room through a ventilator on the quarter deck. All the blowers' mentioned are of the Sturtevant type and are operated by electricity. The large blowers are run at an average of 500 revolutions per minute, and the small exhaust blowers at about three times that velocity. In all storerooms, magazines, and living spaces of the crew, except forward on the berth deck, the air ducts terminate in louvres. In all other locations the terminal is a universal cowl and gate. The smallest terminals have diameter of 3 to 3½ inches. In some instances the velocity of the current is impaired by angles, but wherever practicable efforts have been made to avoid abrupt turns and curves in the lead of the ducts. In addition to the means of ventilation above described, there are in use in staterooms and offices about 35 electric fans of one-twelfth horsepower. There are also in the ship 4 portable ventilating sets of one-fourth horsepower each, for use in double bottoms and compartments having foul air. The orlop deck storerooms have no means of ventilation when the manhole plates are in place, and the small storerooms in the hold without air ducts are ventilated through hatches from the room above on the platform deck. The firerooms, eight in number, receive fresh air through large ventilators with cowl-shaped terminals, one for each room, which extend above the bridge deck, but which should be several feet higher to be efficient. The free entrance of air is partially obstructed by boats and other obstacles on this deck, and to avoid this condition and improve the ventilation below, it is recommended that the ventilators be given the necessary length to accomplish this purpose.

Lighting.—With the exception of the narrow fore and aft passages on the berth deck the ship is well lighted. There should be three additional 16-candlepower lights in each of these passages. The dynamo plant of the ship consists of four 32-kilowatt generators, two in each upper dynamo room, and four 50-kilowatt generators, two in each lower room. For illuminating the ship and running the electric fans one 32-kilowatt generator is all that is necessary, and one of these machines is always in use, alternating every twenty-four hours. The power needed for the four searchlights, electric cranes, ventilating blowers, ammunition hoists, etc., is furnished by two of the 50-kilowatt machines, which are changed after twenty-four hours' use. There are installed in the ship 530 fixed incandescent lamps of 16 candlepower, many of which are provided with ground-glass globes, and the others with water-tight ceiling fixtures. There are 200 portable lights of the same power. The dynamo rooms are not uncomfortable from heat, and the average temperature of the rooms in the Tropics is 95° F. Provision has been made for lighting all parts of the ship with oil lamps in case of necessity.

Heating.—The living spaces of the ship for officers and crew, sick bay, chart house, emergency cabin, offices, and turret spaces are well supplied with radiators. The central control station is in No. 8 fireroom, and the supply to radiators are controlled by a key. There are 12 circuits in the ship controlled by 3 manifolds on the splinter deck, returning to traps in the starboard engine room. The sick bay, bathroom, and dispensary have a circuit separate from the others. The cabin bath tubs are provided with apparatus for heating the water, and the pantries of officers' messes are supplied with steam tables for keeping the food warm. The galley ranges are on the upper deck in a well-ventilated space. When at sea in a tropical climate the heat from the engine rooms and firerooms causes the temperature of the berth deck inside the casemate and of the lower parts of the ship to be uncomfortably warm. In the steam steering room the temperature reaches 110° F.; in the engine rooms 110° to 115° F., and in the evaporator room, with doors closed, the average is about 125° F., but on some occasions in the Tropics, with all the evaporators in operation, the temperature has been very much higher, reaching 150° F.

Food and clothing.—From the date of commission the general mess system has been in operation on this ship and has proved very satisfactory. One-fourth of the rations are commuted, and the money, which averages about $1,200 per month, is used to purchase supplies to supplement the regular ration. There is a sufficient quantity of wholesome food, which is usually well cooked, and the variety is as great as the ration and extra articles purchased with commuted money will permit. The chief petty officers have a separate mess.

There is a bakery on board and a very good quality of fresh bread is supplied to the crew. The establishment of the canteen on board is of great benefit to the crew. On this ship sales are made as near the cost price as possible without loss to the store, and there is no fund accruing from the canteen for the benefit of the general mess, as is the custom on some ships. The clothing supplied to the crew has been satisfactory, and the underwear appears to be of a very good quality and superior to the grade issued a few years ago.

Water supply.—The ship has 4 evaporators and 2 distillers, and when all are in good order can produce 8,000 gallons of potable water daily. There are 14 tanks of various sizes in the ship for the storage of fresh water, with total capacity of 18,367 gallons. The daily average consumption of fresh water is about 4,500 gallons. The scuttle-butts, two in number, are located on the main deck, and the water is cooled by cold-air pipe and coil connected with the refrigerating machine. Only one of the scuttle-butts is in use at a time. There are 8 large tanks in the double bottoms, with total capacity of 150,000 gallons. Their purpose is to carry fresh water for use in the ship's boilers, which in emergency could be used for drinking and cooking. With but few exceptions, the water has been free from salt, or at least potable, but on one occasion, during the trip to Culebra in October, the distilled water was a subject for complaint and examination. Traces of oil and chlorides in sufficient amount to cause turbidity, and in some specimens a decided precipitate, were found. There was no water in the ship free from salt, and with the exception of that contained in two tanks it was all condemned. The water in the excepted tanks had distinct traces of salt, but from necessity was considered usable. An exact quantitative analysis was not made, owing to the absence of potassium chromate in the ship for use as an indicator. The presence of oil in the water was due to the rapid corrosion of the evaporator tube heads, the material of which, being cast steel, leaks were caused which permitted the mingling of steam from the engines with the evaporator water. This defect is now being remedied by removing the old heads and tubes and replacing them by new ones, the heads of which are brass. An improper arrangement of the distilling plant, which caused priming of the evaporators, was the chief reason for the presence of chlorides in the water.

Laundry.—It is to be regretted that there is no available space on board this ship for the installation of a laundry plant. The sanitary advantages are so obvious and have been so well expressed in reports from other medical officers to the Bureau that it is unnecessary for me to repeat them.

Ice machine and cold storage.—The ship has one Allen's dense-air machine, located on the berth deck in compartment A 143. It has a theoretical capacity of producing the cooling effect of 2 tons of ice daily in the refrigerating rooms. When not in use for lowering the temperature of these rooms it can produce about 1,500 pounds of ice in twenty-four hours. In the Tropics, when the machine is utilized for maintaining a low temperature in the 6 refrigerating chambers, the ice-making capacity is very much reduced and it is sometimes necessary to suspend the manufacture of ice in order to keep the temperature of the cold-storage rooms below the freezing point. This is principally due to the arrangement of the cooling pipes, and could be remedied by the use of a manifold so as to cut off the cold air from the chambers not in use. This machine is inadequate for the needs of the ship, and another of the same type and capacity is to be installed while the ship is at the navy-yard. About 8,000 pounds of meat, an amount sufficient for ten days, can be carried in the refrigerating room designated for the use of the crew, while those rooms provided for the officers' messes have space sufficient for at least three weeks' supply.

Bathing facilities.—The quarters of the admiral, captain, and chief of staff, are each provided with a bath tub, shower bath, and stationary wash basin with hot and cold water connections. There are no stationary bath tubs for the use of the wardroom, junior, and warrant officers, but portable tin tubs are provided for every room. There are three shower baths for the use of the wardroom officers in a small compartment on the starboard side of berth deck inside the casemate. One has fresh-water connections; the others are salt water, which, having first passed through the distillers, is often too hot for comfort, especially in warm weather. The floor of the room is mosaic tiling. The waste water from this and all other showers and wash rooms on the berth deck discharge into a sanitary tank located in the engine room and which, when filled, is emptied by an automatic pump. There are three salt-water showers on the starboard side of the upper deck for the use of the junior and warrant officers, and two salt-water showers on the port side for the three wardroom officers who have rooms on this deck. They are located outboard and discharge the waste water overboard through scuppers. The floors are of similar pattern to those on the berth deck. The discharge from the bath, wash basin, closet, and urinal in the quarters of the chief of staff on this deck, is overboard through pipes leading under the deck. On the main deck adjacent to the water-closets of the crew are 6 salt-water showers for use of the men of the deck force. It is recommended that more baths be provided, as this number is inadequate for the number of men supposed to use them. The floor of the baths is of the same material as that of the adjacent water-closets, and the discharge is overboard. On the berth deck there are wash rooms for the men of the engineers' force, the chief petty officers, and mess attendants. These wash rooms are located amidships. The floors are of stone and cement, having a smooth surface, which admits of easy and thorough cleaning, and the waste water discharges as noted above. The engineer's force has 2 wash rooms. The forward room contains 15 porcelain-lined iron wash bowls, which empty into a metallic trough below their supports; 2 salt-water showers, and 56 wire lockers for clothing, towels, and toilet necessities. The after room has 18 bowls, 2 showers, and 48 lockers. All the wash bowls are provided with salt-water connections, but fresh water can be obtained from a pipe in the rooms. The mess attendants have 1 shower and 2 wash bowls, all provided with salt water. The chief petty officers have 6 wash bowls with fresh-water connections, 2 salt-water showers, and 12 lockers in their wash room. Drying rooms, 3 in number, are provided on the main deck in the inclosed spaces about the smokestacks, and add much to the convenience and comfort of the crew.

Cells.—There are four cells for the confinement of prisoners. They are located amidships on the forward portion of the main deck, two on either side. The forward cells have an air capacity of 205 cubic feet, and the after ones 210. All of them are fairly well lighted and sufficiently ventilated by means of holes about 1 inch in diameter cut through the door and sides of cells, and by a wire grating over the door. When all the cells are occupied, the starboard turret passage on the splinter deck and sometimes the forward portion of the port ammunition passage on this deck, are used for the purposes of a prison.

Water-closets.—The two cabins each have a water-closet in the bathroom, which are emptied by pumping the discharges overboard above the water line. The wardroom officers' closests are on the port side of main deck inside the casemate, under No. 16 6-inch gun and the necessary space for headroom is very much obstructed by the gun supports. With their present arrangement they are most uncomfortable, and, from a standpoint of physical discomfort, no expression of disapproval or condemnation can be too strong. There are three closets (Atlantic type), two urinals, and a stationary wash basin in the compartment. The wash basin has no practical use and it is recommended that it be removed and another closet or urinal be put in its place. The floor of the compartment is of mosaic tiling. When the compartment door is closed there is no natural ventilation except through the latticework in the door. The artificial ventilation is the exhaust system. As a question of comfort, especially in the Tropics, it would be much better to change to the supply system and provide outlets for the foul air to escape overhead and outboard. The center stall has sufficient floor area, but the height from grating below to the iron supports overhead is only 57 inches, which makes it impossible for a person of average statue to stand erect in it, and therefore it is seldom used. In the other stalls the floor space is too small, and with the door of the stall closed, a person of more than the average physique can not comfortable remain inside. The headroom is also obstructed in the stall nearest the compartment door. For the personal comfort of the officers who use these closets, they should be reconstructed, the urinals placed outboard, and the closets placed along the inboard bulkhead of the compartment, which would give plenty of space overhead.

The flushing system is by hot water, which first passes through the distiller and which, when in use, adds to the discomfort, especially in warm weather. They may also be flushed by cold water by an independent system, or by the fire main. The closets for the junior and warrant officers are on the starboard side of the main deck with similar construction and subject to the same adverse criticism. The water-closets for the crew are on the main deck in the forward compartment. There are 32 seats, 16 on either side. On the starboard side a bulkhead incloses the two forward seats making a small compartment for the exclusive use of the chief petty officers. The trough under the seats is of galvanized iron, having a smooth surface on the inside and sufficiently wide and deep for the purpose required. The seats are so arranged that they can be removed for cleaning when necessary. On an inboard bulkhead on either side are metallic urinal troughs, also made of galvanized iron. The floor of the entire space is made of cement and stone laid on the ironwork, and, having a smooth surface, is easily kept clean. The flushing system of closets and urinals and lead of the drain pipes, is faulty and deserving of adverse criticism. They may be flushed with cold water by an independent system, but the pump used for this purpose is too small for effective work from a sanitary standpoint. They may also be flushed with water which has previously circulated through the distillers, and when this system is in use they are thoroughly flushed and free from odor. In another section of this report attention has been invited to the lead of the drainpipes of the closets and urinals through the sick bay and bathroom, before discharging overboard, and further attention is called to the lead of the starboard urinal drainpipe between the bottom of the trough and opening in the deck below. The pipe is too small and is easily obstructed by cotton and other waste material thrown into the urinals. The present arrangement is an S-shaped trap and should have a screw plug on the side of trap to admit of easy cleaning when necessary, or the pipe given a more direct lead so that waste material would be carried down and overboard by the force of constant water pressure.

Summary of cruise.—The ship remained at the navy-yard, League Island, Pa., from the date of commission until February 16, 1903, and then proceeded to Hampton Roads, Virginia, arriving there two days later. From that time until March 7 the ship was in that port and at Newport News, and then sailed for Culebra, West Indies, arriving at that port on March 12. On April 5 the ship left Culebra for Hampton Roads and was five days at sea. On April 17 the ship sailed from Hampton Roads for League Island, arrived there April 18, and on May 5 went to Cramp's shipyard for repairs. In order to have as many as possible of the crew out of the ship while the alterations and repairs were being made, ten of the officers, including the surgeon, and a majority of the men, were transferred to the U. S. S. *Lancaster*, where they remained until August 10, on which date they returned to the ship. The *Maine* returned from Cramp's shipyard to League Island on September 18, and remained there one week. She then proceeded to Hampton Roads and from there went to sea for two days to test the battery, and a few days later went to Barren Island, Maryland, for a standardization test. On October 13, the ship left Newport News for a run to Culebra, West Indies, and return, for the purpose of testing the boilers. The round trip was made in eleven days, eight days being spent at sea and three days in port. During the first week in November a cruise was made from Newport News, Va., to Menemsha Bight, Massachusetts, and return, and on November 9 the ship sailed for Colon, Republic of Panama, arriving there November 15. We remained at that port and vicinity until December 8, on which date the ship left for New York, and at the end of the year is at the navy-yard, New York, for repairs. The ship has been in port three hundred and seventeen days and at sea forty-eight days during the year, steaming in that time 11,277 miles.

Statistics and general remarks.—The general health of the officers and crew and the sanitary condition of the ship for the past year may be considered as good. The allowed complement of the enlisted men is 638, but during the last quarter of the year there was a large excess of this number, and the average complement for the year, including officers, has been 639.7. In the class of infectious diseases there were admitted during the year 57 cases of catarrhus epidemicus, 44 cases of parotitis epidemica, 9 cases of febris enterica, 2 cases of morbilli, and 1 case of scarlatina. There were many more cases of catarrhus epidemicus of a mild degree, which were treated without being excused from duty. The infection of this disease and that of parotitis epidemica was brought on board by recruits from the receiving ships *Minneapolis* and *Columbia*. The source of infection for the cases of measles and scarlatina is unknown. Nearly all the cases of typhoid fever occurred while the ship was at Philadelphia, where the disease was prevalent. In the class of parasitic diseases there were 15 cases of scabies admitted during the year, and probably twice as many more cases of this disease have been treated on board but not excused from duty. The source of infection was the U. S. S. *Lancaster*. During the year there have been 93 cases of gonorrhea and 30 cases of chancroid under observation, many of which were placed under treatment without being excused from duty or admitted for record. There have been comparatively few cases of syphilis, and at the present time there are only two cases of this disease in the secondary stage under observation and treatment. A restricted list of the venereal cases has been kept and regular inspections made to determine when they were cured. During the trip to Culebra in October there were admitted to the sick list 15 cases of heat prostration from exposure in the firerooms, and at least 50 others were treated for vertigo and cramps in the muscles of the limbs and abdomen. Some of them were men accustomed to the heat of firerooms, who stated that they had never before been affected in like manner, either in this or any other ship. The greater number were among a draft of men received on board a few days before sailing, nearly all of whom were coal passers. Many of them had never been at sea before; some had never done any hard manual labor; and several were of deficient physique and unfit for the service in that rating. On investigation it was found that many of them had been shipped as landsmen for training, and within a few months rated to coal passers. Several of them claimed they were not strong enough to do the work of their rating and asked to be disrated and allowed to go on deck. More attention should be given to the physique of the men selected and enlisted as firemen and coal passers.

REPORT ON THE U. S. S. TEXAS.

By J. C. BYRNES, *Surgeon, U. S. Navy.*

On May 19, 1903, this vessel became the flagship of the Coast Squadron. The change caused an increase in the number of officers and men of about 100, making the average complement for the year 464. The highest average was reached in the third quarter, when the number was 502.

The sick quarters of the ship remain in the same condition as previously reported.

There is but one stationary cot in the sick quarters, the overflow being provided for in compartment A 115, in which are located three chain lockers.

Owing to the dust arising from the chain lockers while the anchors are being handled, the atmosphere of the place is at times intolerable, especially so when the air ports are closed.

The conditions here have been somewhat improved by the cleaning out and painting of the chain lockers, but the menace arising from the introduction of deleterious matters whenever the chains are used still exists, and there is no apparent remedy.

It is recommended that the port side of compartment A 115 be fitted as sick quarters. This could be readily done by making a few changes in the present existing conditions, such as the placing of a fore-and-aft bulkhead along the line of the hatch coaming after the removal of the cofferdam surrounding it; sealing the water-tight door leading into compartment A 114; removing stanchions inboard to the angles formed by the junction of bulkhead with hatch; fitting up the space between the hatch and forward thwart-ship bulkhead as a storeroom, and installing a dispensary, bath, and water-closet. The space used in making this change will be compensated for by the appropriation of compartments A 113 and A 114 for the general use of the ship's company.

Since the last report the following changes in the ventilation of the spaces to be enumerated have been made: The steam-steering room received the installation of a plenum system of ventilation by taking air direct from the deck by means of a small cowl and air duct. The lower portion of the duct was bifurcated, one leg leading forward through the water-tight bulkhead into the steering compartment, and below to the protective deck; the other leg discharging direct into the steering-engine compartment. The former leg, leading through the water-tight bulkhead, necessitated an automatic valve (a copper globe), which greatly reduced the supply of air. The leg leading to the steering room was therefore removed and an electric blower, No. 12, was installed, so as to draw air into the steering compartment solely. In addition to this, an air duct was installed for the discharge of the hot air in the compartment.

Prior to this change the temperature of this compartment was such that it reached 140° F. at times, with such excessive humidity that it was impossible for the men on watch to do more than run in, oil the engine, and get out into the after-handling room. Any repairs to the engine that might have become necessary could not have been started until the temperature had been reduced by wind sails through the after-ammunition hoist to after-handling room.

Since the changes enumerated above, three daily observations of temperature have been made and recorded, both while at the navy-yard, New York, and on the run from that point, via Hampton Roads, Virginia, to Key West, Fla., with the result of an average temperature of 70.5° F. The sweating absolutely disappeared and the men on watch remained in the compartment at all times.

The temperature in the after-handling room has been reduced and the atmosphere of the compartment purified by means of a telescopic duct completing a break in the after-ammunition hoist between the gun and main decks. To this, on the main deck, has been permanently attached a removable cowl. This work was accomplished by the ship's force, the result being that the after-handling room has become so habitable as to furnish a sleeping space for all mess attendants.

The wardroom storeroom, located directly over the port-engine room, has been greatly improved in its system of ventilation by tapping the main ventilating duct from blower No. 7 and inserting two louvres, and by boring holes through the door. This has served to reduce the temperature of this storeroom some 30°, and stores are now preservable. The principal source of heat in this space is from radiation through a hot steel deck which separates it from the engine room, and which could readily be obviated by a cork or asbestos lining covered with linoleum. It is recommended that such improvement be made.

Since the last report an attempt has been made to reduce the temperature and remove the noxious odors arising from the sweaty clothing of the firemen fresh from watch, in the space immediately over the firerooms and under the redoubt surrounding the uptakes to the smoke pipes and in which is also located the evaporating plant, firemen's wash room, and ice machine. This, in a measure, has been accomplished by cutting holes directly into the air ducts, which are fed by four enormous cowles around the smoke pipe which supply the firerooms. The previous temperature, as shown in the last report, varied from 120° to 150° F. The recorded observations since the change show temperatures ranging from 96° to 118° F. These openings have produced a slight rise in temperature in the firerooms, also sluggish draft, necessitating at times the closing of the holes, whereupon the temperature conditions and foul atmosphere become at once re-established.

This condition can be permanently obviated by cutting away a useless cofferdam around two hatches and opening, by a water-tight door, the space between uptakes from the forward pair of boilers, thus gaining not only a better ventilation in this part of the ship but also two excellent drying rooms for the engineer force who are now compelled to hang clothes saturated with perspiration and other deleterious body matters, in tortuous passageways throughout this entire space. Further it will be necessary to enlarge the openings through the flash plate in the main deck not exposed but surrounding the smoke-pipe lining. These holes are round, about 2 inches in diameter, four in number, located in each angle of space forming the hammock nettings around the smoke-pipe lining, and could be enlarged to elliptical holes of large area without material reduction of stiffness in the smoke-pipe slip. In this space are pockets formed by heavy bracing, necessitated by the peculiar diagonal armor of the redoubt above and two circular pockets for the support of the turrets and 12-inch guns. In these circular pockets are located one evaporating room and what was formerly a machine shop, but which is now used as a laundry. In the laundry there is no ventilation other than oval openings in the bulkhead separating the space from the rest of the compartment. It is used only as a drying room because of the excessive temperature. In the evaporating room there exists a slight and inadequate means of ventilation on the principle of the vacuum system from blower No. 1, but there is no supply other than air which enters by means of hatches and doorways from the berth deck, which is more or less contaminated. By enlarging the capacity of blower No. 1, and the main air duct from the deck, straightening the elbows and giving greater sectional area to the air ducts running to the starboard side, where the ice plant is located, and to the evaporating room on the port side, the trouble would be overcome.

The entire space in this part of the ship is decked over with steel and is immediately on top of the boilers. When steaming the deck becomes so hot that persons barefooted, or only wearing light shoes, are unable to remain standing for any length of time or even walk over it without harm. It is urgently recommended that this space be covered with 2 inches of cork or asbestos lagging, overlaid with linoleum. This, with the additional facilities for establishing a free circulation of air, as pointed out, should produce conditions that would tend to make the space habitable, which is certainly not the case now. These changes should be brought about at the earliest practicable moment.

The improvement produced in the firemen's wash room, both in cooling the temperature and in purifying the atmosphere, by the introduction of fresh air, by means of a temporary wooden-framed canvas-covered ventilating duct, led through No. 3 hatch from the main deck above down through the grating in the gun deck below, direct into the space, is so remarkable as to warrant the construction of a permanent ventilator to replace the makeshift one now in use. In the last sanitary report on this vessel the temperature recorded was from 130° to 145° F. Since the introduction of this temporary means of ventilation the observed temperature has ranged from 65° to 95° F.

The noticeable improvement in the firemen's wash room by the introduction of this simple means of supplying fresh air suggests the feasibility of introducing fresh air into the space above the boilers by means of a large cowled ventilator alongside the conning tower, through the flash plates already in the redoubt, direct into this compartment. This change is urgently recommended.

The changes in the ventilation of the 12-inch magazines, made while at the navy-yard, New York, last autumn, consisted in the removal of blower No. 11 (steam) and installing in lieu thereof an electrical blower of larger capacity; changing leads of air ducts direct into magazines and enlarging and straightening the same and distributing the supply of air in a more economical manner by means of louvres; the removal of blower No. 12, which was placed in the steering room and replaced by a larger one of greater capacity, and the straightening of the connections therewith for the exhausting of air in the lining of the magazines. This has resulted in the average reduction of temperature of 11° in each separate magazine, the observations being made under exactly similar conditions of latitude and longitude and seasons as those made the year before.

During the visit of this vessel last autumn at the navy-yard, New York, arrangements were made with a skillful dentist in Brooklyn for the care of the teeth of members of the crew requiring treatment. About 70 men availed themselves of this opportunity. So far the work done has proved satisfactory in each case.

The general mess is working most satisfactorily. Excellent food with great variety is furnished by the commissariat. Fresh provisions for ten days' consumption are carried at all times. A bakery, with capacity of 800 pounds of bread daily, is in operation, and the general mess is supplied with fresh bread at each of the daily meals. The canteen supplies are of such variety as to meet most of the needs of the crew and are obtainable at very reasonable rates.

REPORT ON THE U. S. S. NEWARK.

By A. C. H. Russell, *Surgeon, U. S. Navy.*

During the year the ship visited the following places: Port of Spain, Trinidad; Bahia, Rio, Santos, and Ilha Grande, Brazil; Montevideo and Moldonado, Uruguay, and Buenos Ayres and Puerto Militar, Argentina. The health of all these ports was good at the time the ship visited them.

Smallpox was epidemic at Rio from August to the end of the year. In that month cases of bubonic plague began to increase each week in number, and the disease gradually became epidemic in the city and the towns around the bay in spite of the preventive efforts of the sanitary authorities. An antitoxin and a vaccine were prepared and used in Rio in the prevention and the treatment of plague. Both were reported to be giving encouraging results. It was said that the members of the sanitary corps were effectually protected by the vaccine. I regret that no official statement as to the effects of these antiplague preparations could be obtained. A specimen of each was got through the courtesy of the United States consul-general, but no occasion to test either on board ship occurred.

It is interesting to note that yellow fever hardly prevailed at all in Rio from July to January, though the plague was virulent.

The officers and men of the fleet were all vaccinated between July and October. Excellent vaccine virus was obtained for the purpose from Montevideo and Rio. On board the *Newark*, in 57 cases showing no evidence of vaccination, 70 per cent of the vaccinations were successful; in 429, with evidence of vaccination, 58 per cent were successful. The total number of vaccinations was 486 and 60 per cent of these were successful.

During the year the general health of the ship's company was good. The daily average of patients was 8.8, and the percentage of sick 2.11.

The ship was at Bahia, Brazil, from July 26 to September 10. During that time, though the weather was very fine, sporadic cases of follicular tonsilitis with severe toxæmia were especially prevalent. The bedding of the individuals affected was fumigated with formaldehyde gas, and they were confined to the sick bay until well to prevent their contaminating the spit kits about the decks. These measures had no effect in checking the disease. Finally, the bedding of the crew was exposed to the sun six days in succession, and the middle compartment of the berth deck, which is always dark, hot, and moist, was scrubbed, together with all its contents, with a 1–2,000 solution of bichloride of mercury. The disease then abated, and only a few mild cases afterwards occurred at longer intervals. The berth deck has since been washed twice a week with a 1–2,000 solution of bichloride of mercury. As none of those who occupied the sick bay with the patients or those who treated them contracted tonsillitis the disease seems not to be conveyed by contact.

Eight cases of typhoid fever occurred, with one death and seven recoveries. With the one exception noted, all the cases were mild and free from nervous symptoms. Circumstances made it necessary to treat four of the cases on board ship. The precautions taken to prevent conveyance of the infection by contact or otherwise were fortunately successful.

After a thorough study of the question I am of the opinion that it is not safe to drink unboiled milk in any port of South America. This is especially true of Brazil. In Montevideo some effort is made by the authorities to secure pure milk for consumption in the city. Much of the milk is brought in from the country in cans set in pigeonholes in the bodies of open carts and exposed for hours to the sun. The cans and the carts are covered with dust and dirt. The common laborers who drive the carts and ladle or pour out the milk have no idea of the meaning of cleanliness of any sort.

Milk is brought in also on horseback in cans tied on each side of the saddle. The tops of these cans are tightened with pieces of cloth, which always look filthy. Over the cans and the saddle is thrown a sheepskin, and on this the rider sits.

In Montevideo milch cows are kept in houses called tambos. The animals remain in these places, which are dark and badly ventilated, for six months without being taken out once for exercise. Under such circumstances it is not to be wondered that many of them are affected with tuberculosis. The air of these tambos is humid and oppressive and loaded with dust. The utensils for collecting and serving the milk are not sterilized.

A part of the milk supply is brought to the city by the railroad. No effort is made to preserve this milk by ice in transit.

In this connection it may not be amiss to state that an epidemic of typhoid fever occurred in His Britannic Majesty's ship *Cambrian* during the last week of July and the first week of August, after a stay of six weeks at Ensenada, Argentina. Thirty-five cases developed in about ten days. The disease was attributed to watered milk bought by the crew from boats or from peddlers on the dock. The U. S. S. *Montgomery*, which had been tied up to the dock astern of the *Cambrian* during the latter part of the stay of that ship at Ensenada, had one case of the fever. This patient may have been infected two weeks previously in Montevideo.

The *Gloucester* was at Ensenada as well as the *Montgomery*. The escape of these two ships from infection, to which they were apparently as much exposed as was the *Cambrian*, is remarkable. The regular bumboatman went over from Montevideo to Ensenada and furnished fresh provisions obtained there to our ships; but the conditions affecting the crews of the three ships were otherwise practically the same.

The construction of the *Newark* from a sanitary point of view has been the subject of numerous reports. It may be well to repeat, however, that the middle compartment of the berth deck is not well arranged for the health and comfort of those who have to occupy it, as it is dark, hot, and badly ventilated. When the hatch hoods are on and the ports are closed, it becomes a steaming place filled with an atmosphere heavy with exhalations from human bodies and odors of food, superheated by an evaporator at one end and a bakery at the other. No wind sail can be put down the central hatch from the spar deck to this compartment as the hatch is covered by water tanks, and the only other hatch is at the after bulkhead. The temperature in this compartment ranges from 99° to 115° F. and is usually about 100° in warm weather.

In the forward and middle compartments practically the whole crew are berthed. The ventilator openings for these two compartments, not counting those for the cells, the water-closets, and the warrant officer quarters are 14 in number—six for the port side and eight for the starboard. The steam fans, by their noise and heat, add more to the discomfort of the middle compartment than they accomplish for it in the way of ventilation.

To keep the berth deck in good sanitary condition it has been washed twice a week with a bichloride solution and whenever it has been possible, the spar-deck bunker plates have been taken out, and permanent openings made to allow heated air from the bakery to escape. If the bulkhead separating the middle from the forward compartment could be removed on each side, the sanitary condition of the berth deck would be improved, without impairing in any way the efficiency of the ship. Electric ventilators should replace the present antiquated, noisy, hot, and inefficient steam fans.

On the South Atlantic Station, the British hospitals at Rio, Montevideo, and Buenos Ayres are the most suitable for our men. There are hospitals also at Bahia, Santos, and Puerto Militar to which patients may be sent in cases of emergency.

The Misericordia Hospital at Bahia is about 2 miles from the boat landing. The only ambulance belongs to the police department. The chief of police kindly loaned it to me one occasion. The patient transported in it was badly shocked by the long drive over the rough roads. The hospital has a magnificent situation and is a very fine, commodious building. The service of the hospital is done by French Sisters of Charity aided by natives. The private rooms, at 8 milreis a day, give good accomodation, but the general wards are not satisfactory for patients from our men-of-war. English is not spoken by anyone connected with the hospital. The operating room is thirty years behind the times.

The new British hospital at Rio is excellent. Patients can be taken quite close to it by boat and carried the rest of the distance by stretcher.

The British hospital at Buenos Ayres is the most modern and thoroughly equipped hospital of South America on the Atlantic side. With a corps of trained English nurses, and under the charge of an accomplished surgeon, it affords its patients the best of medical and surgical treatment amid agreeable surroundings.

The hospital of the naval station at Puerto Militar is now finished. It is thoroughly modern and well arranged.

At Bahia, and at Buenos Ayres, the health authorities insist on having their representatives come on board ship to examine patients whom it is necessary to send to a hospital, no regard being paid to the word or the certificate of the medical officers. This seems to be out of keeping with the courtesy usually shown by officials of foreign nations to visiting men-of-war and puts them in the same category with merchant vessels.

At Montevideo numbers of mosquitoes frequently found their way to the *Newark* while the ship was anchored more than 2 miles from shore. Some of these mosquitoes were *anopheles*. At Ilha Grande the same thing happened with the ship a mile away from the island. In each case the breeze was blowing from the land to the vessel.

While the U. S. S. *Detroit* was at target practice last June, 9 miles from Flores Island and 12 or 14 miles from the mainland of Uruguay, hundreds of mosquitoes were blown off to the ship by a moderate breeze.

From these facts it would be seen that no ship would be safe from infection by mosquitoes in any part of the harbor of Rio, or at any of the usual anchorages in yellow-fever ports. It must be remembered, also, that mosquitoes may be brought off to men-of-war in steam launches, lighters, tugs, and even in open boats.

REPORT ON THE U. S. S. INDIANA.

By Henry T. Percy, *Surgeon, U. S. Navy.*

As it is understood that the *Indiana* is to undergo extensive repairs, I feel that I must again call the attention of the Bureau to the changes necessary to perfect her sanitary arrangements.

I can not do better than give a synopsis of the recommendations of a board of survey of which the commanding officer was president, which is as follows:

1. The installation of an entirely new system of ventilation in accordance with latest practice.
2. The removal of the crew's head from its present position forward on the berth deck, to be reinstalled on the main deck within the forward 8-inch turret supports. In this space it is found that 30 individual hoppers can be installed, 27 for the crew and 3 for the petty officers, which is ample for the purposes and slightly in excess of the allowance.
3. That changes in the sick bay and dispensary, similar to those recently authorized on the *Massachusetts*, be carried out, with the addition of an operating room.
4. That the wardroom officers', junior officers', and warrant officers' bathrooms be removed from their present location on the berth deck and reinstalled on the main deck within the after 8-inch turret supports. This will permit them to drain overboard and will leave the present space vacant for use as staterooms.
5. It is proposed to rearrange the space in the redoubt on the berth deck, in which the warrant officers' quarters are situated and which are scarcely habitable by reason of poor ventilation and heat, with a view to its use for the staterooms of the junior and warrant officers and a mess room for the latter. This arrangement, which includes suitable insulation of decks and bulkheads, is made possible by the proposed new ventilating system and the removal of the auxiliary boilers.
6. To economize space, and for sanitary reasons, it is proposed to remove the galley from its present location and reinstall it on the superstructure deck, thus removing a source of heat from the living spaces.

The health of the crew has been fair considering existing conditions.

REPORT ON THE U. S. S. COLUMBIA.

By E. H. Marsteller, *Surgeon, U. S. Navy.*

The U. S. S. *Columbia* was commissioned at the navy-yard, New York, N. Y., November 9, 1903.

The number of officers on board at the present time is 18, and the crew, including marines, is 505, making a total of 523, which number makes about 50 in excess of her regular complement.

The sanitary condition of the ship is very good. No warm weather has as yet been experienced. In fact we have had steam on for heating purposes up to date.

There have been but few alterations in the ship since she was last in commission. The most notable of these was the changing of the location of the sick bay and dispensary from the forward compartment of the berth deck to the starboard side of gun deck above, in compartment A 122, which adds greatly to the comfort of the sick as well as to the convenience and accessibility of these places.

The ship has two Allen dense-air ice machines located on the port side of the main deck forward, near the cold-storage room, but unfortunately close to the galley. Their capacity is 2 tons of ice per diem, whereas, formerly, there was one machine of 1 ton capacity. They are ample, and do efficient work in supplying cold storage, cool water in the scuttle butt, and ice for the sick bay and water coolers in the officers' quarters.

Cold-storage room.—This is situated immediately forward of the ice machines on the same deck, and has a capacity for fifteen days' supply of fresh meats, which is sufficient for ordinary cruising. The temperature has been down to 20° and 22° F., but that was in rather cool weather.

Fresh-water supply.—The vessel is supplied with two Baird evaporators and three distillers of the Bureau's design, which are located on the protective deck amidships over compartment B 2. The capacity is 7,500 gallons per diem and is sufficient.

Ventilation.—There are four Sturtevant ventilating fans operated by steam power. Each of the three engine rooms has one Sturtevant blower and two ventilators. There are eight main and two auxiliary firerooms, each of which has two ventilators and also two forced draft Sturtevant blowers which can be used if necessary. The coal bunkers have pipes fitted in them for the escape of foul air or any gas generated there.

The medical department.—The sick bay, as stated, has been changed from its old location in the bow of the ship on the berth deck to the starboard side of the gun deck in compartment A 122, and is 23 feet in length, 9 feet in width, and 7 feet in height. There are three doors—one opening on the gun deck, one into the dispensary, and one aft into the bathroom.

There are two ports on the side, and the compartment has five ventilating tubes and one electric fan. I recommend that an additional port be cut when an opportunity presents itself.

Near the center of the deck above there is a large battle hatch, about 6 feet 8 inches long by 3 feet wide. This has to be battened down with its heavy steel cover at sea, but can be opened in port and protected by a grating or an iron frame with a canvas cover or hood. This hatch can be utilized for lowering the injured from the main deck above.

The sick bay is heated by one steam radiator, which proved itself quite efficient during the cold weather. The cubic air space of the compartment is about 1,450 feet.

It is fitted with stanchions and fixtures for ten Nutting cots, which can be unshipped, but which, when in place, can not be elevated or turned up against the side of the bulkhead in order to economize space and be more readily cleaned. The bunks that can be turned up against the side of the ship and secured with a chain when not in actual use are preferable. All the space possible is required in the sick bay whenever the operating table is brought into use, or when it is converted into an examining room. There is no room for the necessary furniture with ten beds in use hence we are compelled to store four beds in order to make room for the operating table and desk.

There was just enough space in one corner for a case containing six drawers, which was obtained through the constructor at the New York yard and which is used for keeping instruments and surgical appliances for emergency and daily use. It is a most convenient, if not indispensable, piece of furniture, and I would recommend it as a part of the medical outfit for all ships.

Dispensary.—The dispensary is well located on the same deck, just forward of the sick bay, and is small, but convenient. It was formerly a brig and has steel bulkheads with one steel door opening on the gun deck and a sliding wooden door opening into the sick bay. It is about 8 feet long and 7 feet wide, with a cubic air space of 392 feet. It has two air ports, two ventilators, and one electric fan. The light and ventilation are all that could be desired.

The bathroom is located just aft of the sick bay and communicates with it by one door. It is about 8 feet square and has a cubic air space of 448 feet. It has one port, with a diameter of 1 foot. The deck is of tiling and easily kept clean. It contains one bath tub, porcelain-lined, 4 feet in length and 2 feet in width, one marble washstand on a metallic frame, with running, fresh water, and a water-closet.

Medical storerooms.—The original medical storeroom is a long distance from the dispensary, in the after part of the ship, under the steam steering-gear room, and the location is most inconvenient on account of the distance, shape of the room, and difficulty in getting into it, it being necessary to pass through engine room, torpedo room, and storerooms down almost impassable ladders. Another storeroom has been obtained, and it is a most desirable room, being midship on the starboard side of gun deck, between the staterooms of two warrant officers. Its cubic capacity is 419 feet, and originally it was used as a clothing room for the marines. The lower store room is used for storing furniture, bedding, bulky articles, and stores that are not in ordinary use.

Living quarters of officers.—As regards the cabin, wardroom, and warrant officers' quarters, there have been but few changes made. The cabin is commodious and in excellent sanitary condition, with an abundant supply of heat, light, and ventilation.

The wardroom has 11 occupants. The ventilation is excellent, and is carried on by means of the various hatches, doors, ports, numerous ventilating tubes of supply and exhaust, run by steam blowers, and also by electric fans, of which there are two in the mess room and one in each stateroom. All of the bathrooms and water-closets for officers should be renovated and improved.

The warrant officers are six in number, and occupy what was formerly the quarters for the junior officers. This arrangement gives them a commodious mess room, while each officer has a stateroom to himself.

Living compartments for crew.—The living compartments for the crew are crowded and short of billets for swinging. This is due to the temporary excess of complement and will probably not exist very long. The facilities for personal cleanliness are excellent.

The brigs, two in number, have been changed from compartment A 22 on the gun deck to the second compartment from the bow of ship on the berth deck below. The cubic air space is 420 feet in each. They have good light and ventilation.

The heads.—The heads are located under the forecastle in compartment A 121. There are 14 seats, 7 on each side of the compartment. They consist of metallic-lined troughs for the sinks, with seats and stalls of wood. The urinals, just forward of the head, are of the same material. The metal is much corroded and worn. It is difficult to prevent the accumulation of fecal matter, although the troughs are flushed with a continuous stream of water. It is recommended that the urinals and sinks be porcelain-lined, that metal or slate be substituted for the woodwork of the seats and stalls, and that the deck be tiled.

REPORT ON THE U. S. S. YANKEE.

By J. D. GATEWOOD, *Surgeon, U. S. Navy.*

The *Yankee* was the *El Norte* of the Morgan Line, and was purchased by the Government at the time of the Spanish-American war. After service during that war the ship was placed out of commission at the League Island yard and utilized for some months as quarters for the marine guard of the station during the building of the new barracks. The vessel was then fitted for a training ship and placed in commission at League Island on May 1, 1903, the officers and crew of the *Lancaster* having been transferred for that purpose.

This ship has a main deck, with its deck houses, a gun deck, and forward, middle, and after berth decks, with storerooms, refrigerating rooms, holds, and bilges below. In the deck houses are the commanding officer's quarters and those of some of the wardroom and warrant officers, together with certain offices, the galleys, distiller room, drying room, drum room, and upper engine room. The rooms of the wardroom and warrant officers in that locality average 435 cubic feet of free space. The after rooms in the middle deck house were arranged for the temporary use of a flag officer. The soil pipe of the water-closet in those quarters discharges into a scupper pipe leading from this deck. The pipe has been diverted from its former use, but the place of discharge remains near the port gangway well above the water line. A soil pipe should be provided to discharge at the water line. The swill chute on this deck is very unsatisfactory from a sanitary point of view, as it is too small. It clogs and can not be kept in good condition.

On the gun deck aft are the wardroom and most of the wardroom officers' quarters, with closets and bathrooms separated from the quarters by a considerable space, ventilated by a main deck hatch. The closets (on the port side) and bathrooms (on the starboard side) are also separated by a space communicating by a lattice with the tiller room, into which a hatch from the main deck opens. This arrangement gives a free circulation of air, and with the exhaust system of ventilation in that part of the ship, would leave nothing to be desired from a sanitary point of view, if in the closets the plumbing did not frequently leak as the result of deterioration of flushing valve chambers and certain pipes. This is true of the valve chambers of all closets in the ship. On the port side of the space mentioned, just abaft of the wardroom officers' quarters, are the bathroom and closets of the warrant officers. These are connected with the exhaust system of ventilation and are provided with ports, which, being on the gun deck, can be left open nearly all the time, as the ship, since the addition of ballast and bilge keels, is very much steadier at sea. The wardroom officers' quarters on this deck open for the most part into alcoves, each provided with a port. The rooms are large, averaging 562 cubic feet of air space, and well fitted. The bunks are inboard against latticed bulkheads that do not extend to the deck overhead. The ventilation is therefore generally very good, as usually the ports can be left open and air scoops are used almost continuously in warm weather. In exceptional weather at sea, or in rains when the ports have to be closed, the need of additional ventilation is very apparent. The forward wardroom has 3,654 cubic feet of free space and the after wardroom 2,956.

Amidship much of the gun deck forward of the wardroom is occupied by the armory and the engine and fire room trunk, containing also the evaporator room and engineers' wash room. Forward of these are the bakery, scuttle-butt, ice machines, and anchor engine, while outboard are the guns, certain offices, issuing room, lavatories, and heads. Room is also occupied here by hammock bins, bag racks, and lockers for mess gear. There are separate closets for petty officers, and the heads are large and fairly well ventilated by exhaust blowers and, generally, by ports. The woodwork in the heads had to be removed shortly after the ship was placed in commission. The seats now in use can be taken out daily and scrubbed. Twelve removable shower baths have been connected with the flushing system on this deck and are much used in the morning watch. These are in addition to six that have been installed in the crew's wash room.

The condition of the gun deck is of much importance from a sanitary point of view, as about one-half of the enlisted force of 726 men sleep there. It has 61,498 cubit feet of free space, or about 172 cubic feet per man. It is also the deck upon which the men naturally congregate in the daytime, especially in cold weather. A considerable portion of the deck itself is in bad condition, especially in those parts where the planking in the ship when in the merchant service has been retained. It has many nail holes, is roughened by the handling of cargo, and contains much rotten wood. Such a deck is kept clean with difficulty, and when wet the wood retains the water for many hours. There is also along this deck on the starboard side from the ice machines to the tiller room an abandoned tiller-rope well that collects dirt and water and should be removed.

The difficulty of keeping this deck clean and dry has given some concern. It was formerly washed down each morning, but under that treatment was rarely dry. Then for some time it was shellacked, but owing to its condition the shellac did not hold well, and the supply being exhausted the original method is now pursued with somewhat less objection since the ship has been in the Tropics and the men pass much of the time on the main deck. It is not clear what influence the condition of this deck has had in the prevalence of cases of follicular tonsilitis on board. It is ventilated by ports and hatches, and, as ordinarily in warm weather the large gun ports can be left open, the air is generally good. In cold weather and in wet weather there is an accumulation of foul air on this deck, especially in the long passages about the engine and fire room trunk.

The berth deck is divided by bulkheads. Aft is the warrant officers' mess room into which open three large rooms, each having two bunks. The closets aft of these quarters are not used. They are of the yacht type and the ventilation is by exhaust. Under these quarters is the largest tank in the ship for the storage of drinking water. It holds 22,066 gallons and is not an independent tank, but a part of the bilge bulkheaded off, with the bottom cemented and the sides and frames cement washed. Through it passes the shaft tunnel, from which by the removal of manhole plates it can be entered. This tank is not watertight, as from it there is a leak into the bilge (compartment D 6). Practically all of the drinking water of the ship passes through this tank. While from ordinary tests the water has appeared to be of good quality the storage in a skin tank does not seem to be free from objection. The other drinking water tanks are independent and are situated in the engine room and the tank room (compartment D 1), one holding 3,017 gallons, one 6,223 gallons, and one 9,280 gallons, making the total storage capacity 40,586 gallons. All of the water from the distillers is received in the 3,017 gallon tank, and is tested before being pumped into the other tanks. Should it fail to pass the prescribed test it is utilized for feed water. The ship has two evaporators used for making drinking water, with a total output of 6,000 gallons a day under usual circumstances.

The three compartments of the berth deck (forward of the warrant officers' mess room) provide berthing space for 336 men, distributed as follows: In the after berth deck space, having 12,278 cubic feet of free space, there are 105 men, with about 117 cubic feet per man; in the middle berth deck space having 20,282 cubic feet, 147 men, with about 138 cubic feet per man, are placed, and forward (13,395 cubic feet) there are 84 men with about 159 cubic feet per man. The billets are close together in all parts of the ship and, with a crew of 726, including marines, there is some overcrowding, although some of the men sleep in the machine shop, carpenter shop, and certain other parts of the ship above the berth deck. On December 10, 1903, the ship left Hampton Roads with 745 people on board, the hammocks for the most part in touch. This condition was of course only rendered practicable by the artificial ventilation on the berth deck, in each compartment of which is a blower supplying air. The motive power is electricity, which is also used for lighting. There are three dynamos situated forward of the after berth deck in a space well ventilated by exhaust and supply blowers. Most of the blowers on board were put in for temporary use, as the motors of those intended for the ship were found on trial to heat. The work of the blowers now installed has not been very satisfactory, but it is understood that other blowers will be installed in the spring.

Some of the louvers seem placed too near the hatches. It seems probable that with blowers supplying a greater volume of air this objection will be lessened, though that will, however, increase drafts on individuals, which is now a prominent objection in cold weather. While a greater diffusion is desirable, the plenum system on this ship has been much more satisfactory, especially in the Tropics and in warm weather, than the exhaust method could have been. The extension of that system to the brigs has somewhat improved the ventilation of those spaces. A great improvement should be made without delay in the chief petty officers' room near the brigs, which has at times to be deserted at sea on account of the heat and lack of ventilation.

The brigs are situated on the middle berth deck, four on each side. Those outboard have 224 cubic feet each and an air port. Those inboard have 196 cubic feet each. All of the ports on the berth deck have, of course, to be closed at sea, and then the air in the lower parts of the brigs becomes disagreeable, as the amount of artificial ventilation provided is small. This is especially so in the inboard brigs, and it is recommended that the openings in doors and fore and aft bulkheads be increased in size and number.

The deficiency in ventilation at sea is somewhat marked on the after-berth deck, where the cubic space per man is less than in other parts of the ship. One of the ducts in that space is deprived of much of its share of air by the supply to the deck below. The engine and fire rooms are relatively very well ventilated, but the heat in the evaporator room is excessive and ventilators for that space should be installed without delay.

The sick bay is situated on the forward berth deck, immediately aft of the chain locker and under the anchor engine. The location is the usual one on wooden ships and the disadvantages have been very often stated. On a ship with a crew as large as this, there are not infrequently serious cases under treatment on board. The motion so far forward is at times great, and there have been periods when men not given to seasickness have suffered severely from that ailment when on the sick list. The noise made by the chains passing through the chain pipes is very startling and the sound of the saluting guns forward on the main deck (scarcely heard in many parts of the ship) is disquieting here. Through the sick bay, operating room, and dispensary pass a large number of pipes, including those from the heads and to and from the anchor engine. The latter are most objectionable, as they act as a steam radiator in the sick bay and in warm weather subject the sick to excessive temperatures. This has not only been so when the anchor engine has been in use but also at other times, as the valves provided have not controlled the circulation in the pipes. These same pipes also pass through the medical storeroom and the heat injures not a few of the supplies. It appears that the anchor engine could receive its steam to advantage if the pipes were carried to the gun deck near those supplying the ice machines, and it is strongly recommended that they be removed from the sick bay.

It is impossible, under the present circumstances, to keep the sick bay dry for leaks from the deck above are frequent. This is not only true of the place where the pipes of the anchor engine pass through that deck but also of the waterways, which, though cemented, permit some water to pass when the gun deck is washed. The sick bay contains 3,917 cubic feet of free space and has 14 bunks.

There is also swinging room for three members of the hospital corps. The bunks are in two tiers, and twelve of them are in units of four. Thus frequently two sick men are practically in the same bed though, perhaps, suffering from different diseases. In serious cases where there is no opportunity for transfer to hospital one man prevents occupation of the bunk next to him and also of the bunk immediately above him, as the sag of its canvas bottom limits the space too much and also interferes with the work of attendants. He can not be placed in an upper bunk as it is too high for a nurse to do the work properly. Thus even two serious cases greatly reduce the accommodations. There are few vessels in the Navy with as large a crew, and the facilities for looking out for the sick should be as great as in any other vessel, especially as so many of the men are recruits.

The operating room is without a water supply and the sick bay is without a stationery basin, or any water supply save that to the bath tub in the adjacent closet. The present arrangement (a basin and pitcher) is very inadequate and does not promote cleanliness in nurses or patients. There should be a supply of hot and cold water in both operating room and sick bay. The sides of the latter should be sheathed, as even in cool weather there are marked differences of temperature within small areas and a chilling effect that makes the treatment of bronchial troubles difficult. This was apparant during the summer on the New England coast.

The ventilation is by ports and connection with the blower on that deck. In an ordinary sea the ports have to be closed, and then it becomes very apparent that the two small louvers do not supply an adequate amount of air. Recently a wind sail has been utilized at sea to some advantage, but that necessitates the removal of one of the main deck ladders, and the awnings of the ship are not fitted for the purpose. It does not seem to be always practicable before installment to determine how much one set of air ducts will rob others coming from the same blower. In this case the small air ducts going into the sick bay do not carry the amount intended, and as a result the ventilation is unsatisfactory. It is believed that an independent system should be installed for the sick bay and operating room, the blower to be placed on the starboard side of the forward berth deck just aft of that room, which is without ventilation at sea. The operating room contains 692 cubic feet of free space, has no water supply, and is provided with two ports, necessarily on the same side, so that with the door closed there is no cross ventilation save through a small opening cut through a bulkhead into the berth-deck space. As at sea the ports have to be closed, the room seems to be a pocket of dead air even when the door leading into the sick bay is open, and is an unsuitable place for administering anæsthetics. It was intended to place a desk fan at the opening cut in the bulkhead, but it is not believed that that would be sufficient. It would not be practicable at sea to isolate a case in the operating room as the air is insufficient. This has been done temporarily in port in contagious cases, as it is a room easily disinfected, and there is little movement of air from it to other parts of the ship.

This leads to a question of no small importance in a ship with such a large number of recruits. The appearance of cases of epidemic diseases does not seem to be uncommon in the training service under the present circumstances. On this ship, during the past year, there were cases of mumps and measles. which diseases were prevalent at the station from which the men were received. With the ship crowded with men, many of whom are susceptible to such diseases, it is of great importance to have some place arranged for the segregation of first cases. There is no such place on this vessel, but it would seem to be very advisable to provide one, even if it has to be done at the expense of the complement. It appears that should no suitable place be found available on the main deck, such a place could be obtained by making a small room aft of the operating room. The ventilation by artificial means would require adjustment, but the result would tend greatly to secure the efficiency of the ship and the health of the crew and avoid awkward complications involving quarantine.

The sick bay water-closet has been very unsatisfactory. It is of the yacht type, but is too far above the water line to depend upon suction. Connection was made with the flushing system, but the pump permits leakage. The deck is generally wet and the condition very insanitary. The annoyance to patients and to attendants has been very great, and some better arrangement is necessary. It is believed that it is practicable to install a gravity closet, as the height above the water line is considerable.

The dispensary is large (756 cubic feet with 612 of free space), is well lighted, and in a convenient location. The faucet at the stationary basin is not suitable for a dispensary, as it is not practicable to fill bottles from it. The medical storeroom (810 cubic feet) is also well arranged, and capable of receiving all necessary stores without crowding. It is on the platform deck under the operating room, and is conveniently located; but, as has been stated, it is heated to such an extent by steam pipes that certain stores are injured.

The following changes are recommended as necessary in the sick quarters of this ship if they are to remain in their present location: Sick bay—Steam pipe to anchor engine to be removed; all leaks to be stopped; sides to be sheathed; enough folding bunks to be placed against the sheathing to secure separation of sick; large stationary basin to be installed with hot and cold water and accessories; artificial ventilation to be greatly improved; present water-closet to be removed and a gravity closet installed. Operating room: Artificial ventilation to be supplied, and stationary basin, with hot and cold water and accessories, put in. Dispensary—Faucet of stationary basin to be replaced by one of suitable type. Isolation room—A suitable room for isolation to be provided.

The bilges are accessible throughout, as the pig iron used for ballast has been put in cribs in the wings. The bilges under the forward and middle berth decks are generally dry, but the former has at times contained water that from the odor must gain access from the refrigerating rooms.

The refrigerating rooms are large and could carry fresh meat for long voyages, but experience seems to have shown that the ice plant is insufficient even when the attempt is made to utilize only a part of the space. The bottom of the rooms are covered with sheet lead that extends up the sides about 3 inches, where it is overlapped by the zinc, which lines the rest of the sides.' It is apparently at that joint that the water accumulating at times leaks into the forward bilges.

The condition is insanitary and seems to depend, not so much upon a defect in the refrigerating rooms, as upon the inability of the ice plant, owing to its small size, to do the work required. The after bilges generally contain water, much of which has to be carried out along the decks by hand. In the engine room the pumps used on the bilges seem to be placed too high to maintain an unbroken column of water. It appears that the difficulty in getting the bilges in that part of the ship fairly dry and clean would be obviated by placing a bilge pump in an unoccupied space on the lower platform of the engine room.

During the year there were 1 case of mumps, 5 of measles, 7 of typhoid fever, and 107 of tonsillitis, almost all of the follicular type. The cases of mumps and measles and most of those of typhoid fever resulted from the stay of the ship at the League Island yard, the last disease being then very prevalent in the city of Philadelphia. Most of the cases of tonsillitis occurred in the fourth quarter among the draft received from the *Franklin*, but the disease had been more or less prevalent on board in the previous quarter, and there had been a number of such cases on the *Lancaster*, from which vessel this ship's company was received on May 1. This disease caused nearly one-third of the total number of admissions during the year and furnished more than 28 per cent of the sick days. In the fourth quarter there were 72 cases on the sick list, and they gave 50 per cent of the sick days. The average duration of a case was 4.43 days, and there were usually high temperatures and much prostration for twenty-four or forty-eight hours. Warm weather caused a marked decrease in the number of cases, but they continued to appear on board from time to time in the Tropics. There were very few second attacks.

REPORT ON THE U. S. S. NEW ORLEANS.

By O. DIEHL, *Surgeon, U. S. Navy.*

In designing this ship the questions of health and comfort were evidently given very little consideration, and to remedy the sanitary defects and to make her comparatively comfortable for the crew radical changes are necessary. Since her purchase, beyond the installation of a few small electric blowers on the berth deck, nothing has been done in the way of providing a general system of artificial ventilation. The storerooms are entirely unventilated and generally very warm. As the berth deck is encroached upon by coal bunkers, the berthing space is greatly contracted. Only about one-third of the crew swing in hammocks, while the remainder sleep on deck and on top of the bunkers, spreading their mattresses wherever they find room. When the weather permits, this is on the upper decks, but as the ship rolls readily and the gun deck is frequently wet, this space is seldom available at sea.

The sick bay and dispensary are located forward on the starboard side of the berth deck. The former is ventilated by a funnel opening about 2 feet above the top-gallant forecastle deck, but the free ingress of air is interfered with by a decided bend in the funnel, and by the fact that the outlet opens under the lee of the pilot house. Recently a one-quarter horsepower electric blower was placed in the sick bay at the inner opening of the funnel, resulting in a decided improvement of conditions there. The sick bay has two small air ports, which are, however, closed at sea. The dispensary has only one air port. The temperature of the dispensary and sick bay are always maintained at a high point by two steam pipes passing through these compartments, supplying the ice machine. The sick bay is unprovided with bunks and the space is too contracted to admit more than two swinging cots. I have requested that four Bowles cots be put in, which will be done as soon as they can be procured, and which will result in increased comfort and economy of space.

The year was spent as follows: During the first quarter, in the Philippines and at Hongkong; during the second and third quarters, at points along the coast of China and Japan; and during the fourth quarter, in Japan and on a trip to Honolulu, Hawaii, forty-five days being spent at sea and three hundred and twenty-one days in port.

In spite of insanitary conditions on board ship, the amount of sickness was not excessive. With a daily average complement of 345, the total number of sick days was 2,266, or a percentage of 1.8 sick.

REPORT ON THE U. S. S. WISCONSIN.

By JOHN M. EDGAR, *Surgeon, U. S. Navy.*

The first quarter of the present year found the vessel at the navy-yard, Puget Sound, where a number of changes were being made looking to improved hygienic conditions. During the remaining months the ship has cruised on the Asiatic station.

The health of the ship's company has been very good, venereal diseases claiming the largest percentage of sick days.

There were 2 deaths during the year, 1 from drowning and 1 from dilated heart.

The system of artificial ventilation has been much changed during the past year, but although there is a great improvement it is still far from perfect, owing to the faulty apparatus in use and the many curves in the air ducts, which were made necessary in changing from the system of steam blowers to that of electric blowers on the main and berth decks.

At present a system of combined steam and electric blowers is in use. The splinter deck and all below it, excepting the dynamorooms, are ventilated by the steam blowers. These are six in number, in three sets, as described in former reports. The amount of work, however, that they have to do has been decreased, so that at present the after pair ventilate only the magazines, storerooms, and passages aft of the engine room. The midship pair ventilate the ammunition passages, machine shops, and engine rooms. The forward set ventilate the holds, magazines, storerooms, and shell rooms forward of the dynamo room.

The main-deck, berth-deck, and dynamo rooms are ventilated by 17 electric-motor blowers, distributed as follows: Four in the dynamorooms, six on the berth deck, and seven on the main deck. Of the four in the dynamorooms, two are in the upper and two are in the lower rooms. These have intakes from cowls on the upper deck, one on each side of the conning tower. The six on the berth deck are divided into three pairs and ventilate the three sections of the ship formed by the diagonal casemate armor. The after blowers are in the passage aft of the after diagonal casemate armor and have their intake from cowls on the quarter-deck abreast of the after edge of the turret. They have ducts leading to and louvers opening into the cabins, wardroom, and most of the wardroom officers' rooms. Two in the middle section, with intakes on the upper deck abaft the 6-inch guns, supply six wardroom officers' rooms inside the casemate, the junior and warrant officers' rooms, and the marine quarters. Two forward of the forward diagonal casemate armor, with intake on the forecastle abaft of the after edge of the turret, supply the whole forward part of the ship, viz, chief petty officers' mess room, engine-room forces' quarters, and sick bay. The sick bay being at the end of the line of ducts is poorly ventilated, especially when the ship is at sea and the louvers are open along the whole line.

While the ventilation forward and abaft the casemates is inadequate at all times, it is totally useless at sea during any weather that necessitates the battening down of the hatches of the quarter-deck or forecastle, on account of the cowls being unshipped and the intakes closed. The seven blowers on the main deck are placed where most needed, namely, one in the men's head, with exhausts on the starboard side of the forecastle; two in the men's wash room, with exhausts on the upper bridge abaft the military mast, which act as exhausts for the dynamo-rooms; one each for the wardroom and junior officers' water-closets, with intakes on the gallery of the upper deck; a small one for the junior officers' and another for the warrant officers' mess rooms. These have no special intake, but receive their supply of air from the main deck.

This seems to be a good system when the ship is in port and at sea during calm weather, but during heavy weather part of the system is worthless. Owing to a faulty mechanism in the electric motors from 30 to 60 per cent of their capacity is available, and at times part of them can not be used at all. They have been condemned by two boards, also by an expert sent out from the Department, and it is understood that they are soon to be replaced by a new set.

Six of the rooms in the after torpedo room, occupied by wardroom and junior officers, could be made much more comfortable, in regard to light and ventilation, by cutting windows in the after bulkhead. These could be of large size, and, with fans adjusted in front of them, cool air from the torpedo room would circulate through the rooms and would reduce the temperature from eight to ten degrees.

The individual bowls that were originally in the head for the crew have been removed, experience having shown them to be a failure, and in place thereof a long trough, with a strong, continuous flow of water has been substituted, which is a decided improvement.

The commissary store was inaugurated during the year and is appreciated by the ship's company, as has been shown by the amount of sales therefrom.

The general mess system is to be commended and it is very uncommon to hear complaints of either the quality or quantity of food.

One of the marked improvements particularly conducive to health has been the use of linoleum on the decks during latter years, and that aboard this vessel, after three years' wear, is in very excellent repair.

The distilled water has been of excellent quality.

A laundry is much needed and would work to great advantage.

The old cots formerly used in the sick bay have been discarded and in lieu thereof eleven folding cots have been substituted.

An operating room is absolutely necessary and could be easily supplied by removing the brig from its present quarters. At present both aseptic and septic cases are dressed in the sick quarters on the port side. Had we the above extra room, fitted up with a steam sterilizer and cabinets for the care of instruments, few cases purely surgical would require transfer to a hospital.

The antiquated washbowls in the dispensary and bathroom should be removed and modern basins substituted.

REPORT ON THE U. S. S. MASSACHUSETTS.

By Philip Leach, *Surgeon, U. S. Navy.*

The good health of the crew, aside from accidental troubles, may be largely attributed to the almost constant climatic conditions favorable to natural ventilation and to life on deck in the open air. The ship was exposed to but one month of weather cold enough to sensibly modify these conditions, which are so very desirable in the absence of an efficient ventilating apparatus. The health of the crew has been further protected by the cleansing of the ship's interior with soap and water, and frequent application of fresh paint, and by well-sustained efforts to maintain the other hygienic conditions now established in naval life, embracing wholesome food, pure water, abundance of sleep, ample occupation, suitable recreation, and personal cleanliness.

The extensive repairs to the ship's bottom, made necessary by the accidental grounding of the vessel during a dense fog early in August, afforded an opportunity to effect much-needed improvements in the space allotted to the medical department. The admirable recommendations regarding the enlargement of this space, published in the report of the Surgeon-General for 1903, were in the main carried out in so far as the sick bay proper, the bathroom, and the dispensary are concerned.

The proposed operating room abaft the dispensary was not built. I urged the execution of the plan in its entirety, but it was held that the operating room would encroach too seriously upon the crew's berthing space. I am not without hope that eventually the great importance of an operating room will be recognized.

Resulting from the changes authorized, we have in the sick bay 3 glass 13-inch air ports fitted in the deck above, 10 instead of 4 berths, and new linoleum on the deck; in the bathroom, an extension inboard, 10 wire lockers for patients' clothing in this extension, a tile floor, a new washstand, new bath tub and accessories, and, most important of all, communication with an adjacent ventilator bit; in the dispensary, 120 cubic feet of additional air space, a modern dispensing equipment, a new sink, a folding berth, and a folding writing shelf, all so arranged as to considerably increase the available floor area. On the whole, the work accomplished is satisfactory, but much of it was done at the eleventh hour and therefore not so well as could be desired. Hence the existence of some leaks and an undulating linoleum floor. These defects doubtless will be remedied during the next sojourn at a navy-yard.

The space in the sick bay for the 6 additional berths, and, in the bathroom, for the 10 lockers, was obtained by moving the longitudinal bulkhead inboard 4 feet 9 inches. This change has increased the cubic space of the sick bay proper from about 2,000 feet to about

2,760 feet, but, as the number of berths has been increased from 4 to 10, there results a reduction of about 45 per cent in the cubic space per berth.

The 6 new berths are of the Nutting pattern, and are a distinct improvement on the old style in use on this vessel. This ingenious berth is light in proportion to its strength, and is unshipped with considerable ease, a valuable quality when an upper berth is not occupied or when additional floor space is temporarily needed. But, inasmuch as there is no place available for the storage of the unshipped berth, the folding berth, which one person can quickly turn out of the way or lower for use, seems better adapted to the requirements of a sick bay. Where the distance between decks does not permit the installation of both upper and lower berths of the folding kind it would be well to adopt the Nutting pattern for the lower berth and place the folding pattern above.

In referring to the vessel's imperfections from a sanitary viewpoint, I have uppermost in mind the very unsatisfactory ventilating system. This defect, the objectionable location of the crew's water-closet, the offensive waste-water tanks, and other unwholesome features, have been fully described and commented upon by my predecessors. The failure of the ventilating apparatus is notorious, but to realize the sickening foulness of the air in the living spaces and the existing unpleasant physical effects upon the people exposed thereto, when hatches are battened down day after day, one must have had the experience of a long voyage on the vessel. It is to be hoped that for the sake of the health and comfort of the people on board, further employment of the vessel on long voyages will be avoided until a solution of the problem of artificial ventilation has been achieved.

REPORT ON THE U. S. S. BUFFALO.

By L. W. Curtis, *Surgeon, U. S. Navy.*

The *Buffalo* has been engaged throughout the year in training landsmen. During this period one hundred and one days have been spent at sea, and one hundred and seventy-four days at navy-yards. The average complement for the year was 587.92; the daily average of patients, 10.3; and the total sick days, 3,664. There were 208 cases transferred to hospital.

The following foreign ports were visited: Villefranche, France; Algiers, Algeria; Gibraltar; Port of Spain, Trinidad; Bahia, Brazil; Port Castries, St. Lucia; Guantanamo, Santiago de Cuba, and Habana. Nine cases of parotitis epidemica developed on the passage to Villefranche, which caused a delay in the transfer of men to the European Squadron, and detained the ship at that port twenty days.

All places visited were free from epidemic diseases, and comparatively little venereal infection resulted from shore liberty, which was given at Villefranche, Algiers, and Bahia, One case of cerebro-spinal meningitis developed while the ship was in the West Indies, in the person of a landsman for training who had been received from the U. S. receiving ship *Franklin* a month previous. The case was well marked in its clinical features. He was transferred to the United

States Army Hospital at Habana on the ninth day after admission to the sick list. As he had not been out of this ship from the time of his reception on board, the case may be regarded as one of receiving-ship infection.

Following the epidemic of diphtheria, which had been subdued before the end of the first quarter of the year, there developed 2 cases of tonsillitis in the second quarter, 10 in the third quarter, and 58 in the fourth quarter, with a total of 249 sick days, and 6 cases invalided to hospital. This disease, which so prevails in training ships, calls for a consideration of its cause and of measures for its correction. Overcrowding is unquestionably the main factor. There were 825 persons on board the vessel, of whom 509 were landsmen for training, during the week ending December 5, 1903. Hammock hooks are spaced 14 inches apart in this ship, so it is easily seen how a disease of this character spreads under these conditions. It seems highly desirable that there should be an exact scale of berthing laid down and a limit placed on the number of persons assigned to these ships, as is the case with immigrant and passenger vessels where the period of travel is much shorter. An annual fumigation and disinfection is desirable on board ship. This is entirely feasible and practicable and could be effected at the naval station at Pensacola, Fla., or at Port Royal, S. C., at some suitable season of the year when the crew could be placed in camp, at small cost in convenience or time.

The ship was at navy-yards one hundred and seventy-four days at various intervals during the year. These were periods most prejudicial to the general health by reason of inadequate facilities for securing cleanliness, except at Port Royal, where conditions were excellent in this respect. As this, perhaps, represents a fair yearly average of the time spent at yards by ships in general, it is important that some accommodation be provided at navy-yards, pending the time when barracks shall be built, for the crews of ships undergoing repairs.

The structural deficiencies of this vessel, from a sanitary viewpoint, have been brought to the attention of the Bureau in former reports. Improvements effected during the year include two 12-inch metallic ventilators leading through the superstructure deck to the wardroom, and the enlargement of the main deck hatches to double their former size.

REPORT ON THE U. S. S. PRAIRIE.

By F. W. F. WIEBER, *Surgeon, U. S. Navy.*

During the greater part of last year this ship was used as a training ship for landsmen and belonged to the training squadron, but since November she has been attached to the Caribbean Squadron.

During her work as a training ship she has cruised along the eastern coast of the United States, as far south as Galveston, and as far north as Rockland, Me. For a week, during the maneuvers in August around Portland, Me., she carried on board the Massachusetts Naval Brigade. Since being attached to the Caribbean Squadron she has served mainly as a transport for a battalion of marines ordered to duty on the Isthmus. Her average complement for the year was about 500 men.

To accommodate the sick, there is a very comfortable sick bay with sixteen bunks. The bunks, which were installed in October, 1903, at the League Island Navy-Yard, against the protest of the medical officer, are of iron frames with canvas bottoms, and are fitted with mattresses and pillows. The objections to them are, viz: They are too narrow (22¾ inches); they are not springy enough; and their sides are not raised sufficiently to prevent the sick from being pitched out in a heavy sea.

Dissatisfaction with undesirable bunks will prevail until a navy standard bunk is adopted by the Bureau for use on board ship.

The ship is very comfortable, but has several serious sanitary defects which should be remedied. Under the conditions which prevail at sea she is insufficiently ventilated. A very poor exhaust system, run by electricity, comprises the artificial ventilation of the ship. Neither the brigs, the storerooms, nor any other part of the orlop deck, are connected with this system. When at sea, the air ports on the berth deck being closed, the brigs are closed air sacs and are not inhabitable. The entire system should be changed to a powerful supply system, which can be run constantly, and which will reach every storeroom and brig.

The present exhaust system can be run only one-half the time, namely, at night, as the dynamo power is said to be insufficient to permit of constant running.

A second sanitary defect is connected with the cold-storage plant. There is constant condensation of water on the cold-air pipe where it runs along outside the cold-storage room. As a result the deck is kept constantly wet. If the condensation can not be remedied, the wooden deck should be removed and replaced by sections of grating, which can be cleaned and dried in the open air as occasion may require, or it should be replaced by a cement deck.

With the exception of the above points, the ship can be considered as well fitted for the work she is doing.

During the ship's stay at League Island in September, two mosquitoes of the variety *anopheles* were found on board this ship while alongside the dock. At our present anchorage at Colon, about one-half mile from shore, none have been encountered.

The medical supplies have, in the main, proven satisfactory. Instead of one sterilizer, there should be two on board; one is not enough for the sterilization that may be necessary in an operation, where sheets, gowns, dressings, and instruments have to be sterilized. The amount of alcohol allowed for a vessel of this size, on which dressings and instruments have to be sterilized daily, is not sufficient for six months. The total allowance has been used up in one quarter without any undue waste.

REPORT ON THE U. S. S. ALBANY.

By A. R. Wentworth, *Surgeon, U. S. Navy.*

The sanitary condition of this vessel to which attention has been called in all the previous reports since the ship has been in commission remains unchanged. The necessity for these improvements has been more than ever brought to my attention during the past year on the long, stormy trips at sea, and on many other occasions when it was necessary to batten down, it being absolutely impossible at such times to obtain a sufficient supply of fresh air, either for living spaces or storerooms on the berth deck. The excessive number on the sick list following such an event, especially with diseases due to foul air, i. e., boils, abscesses, tonsillitis, etc., was marked.

The low free board keeps the decks constantly wet and impassable, without danger, in heavy weather.

Several injuries have taken place, owing to the exposed condition of men working at the ash hoists during the heavy weather at sea. Other and more modern arrangements for dumping ashes should be substituted for the present system.

The supply of fresh water from the present distilling plant is insufficient, and a larger plant, similar to those used on the other ships of this class, should be put in.

Much improvement, as to the temperature of the berth deck, was made by lagging the steam pipes leading to the anchor hoist and ice machine, and the temperature of the water in the scuttle-butt was improved by a direct lead of cold air from the ice machine.

The galley has been changed, and a new and larger range with baking oven and two large soup boilers installed.

Too much importance can not be attached to the installation of the ventilating plant for the berth deck and living places, as well as for the storerooms; also a more liberal supply of fresh air to prisoners confined in the cells. When in a very warm climate it is often dangerous to keep them strictly confined, in accordance with court-martial sentences.

During the trip through the Red Sea several cases of severe heat prostration occurred on board; three of these cases have since been invalided home or to hospital.

While at Colombo, Ceylon, the leper hospital was visited, and this disease in its various stages, both the anæsthetic and tuberculous forms, were seen. The patients appeared contented and were well cared for. The principal form of treatment was the chaulmugra oil, but no treatment has thus far proved effective when the disease is well established. The surgeon in charge told me he had but little fear of the disease, as he had been treating it for about twenty-five years, performing autopsies, etc. One of the female nurses had been connected with the institution for fifteen years. That the disease is contagious is without doubt, under certain recognized conditions.

At Hongkong, China, there was considerable plague among the Chinese, and the carbolic acid treatment was the one said to be the most satisfactory.

At Kiaochow, China, a German settlement, I visited the hospital, which is on the pavilion plan, and is beautifully situated on a hillside back of the town. The grounds were attractive and the buildings in good order. There were about ten separate buildings, with accommodations for over 1,000 patients. The bacteriological and experimental building was some distance from the others, and well equipped. The principal diseases at the time of my visit were enteric fever and syphilis.

Recommendations.—1. That the installation of artificial ventilation for storerooms in all parts of the ship, berth deck, wing-passages, marine and warrant officers' quarters, be installed.

2. That the sick bay floor be tiled, a small porcelain bath tub put in, and latticework over the doors allowed.
3. That arrangements be made for direct lead of wind sails into the fore and aft parts of the ship and into the warrant officers' mess room.
4. That hoods to ventilators leading to wardroom be enlarged, to insure a more abundant supply of fresh air at sea.
5. That a more liberal supply of air be given to persons in the cells by latticework above the doors.
6. That the present distilling room be removed to the main deck and a larger plant substituted; also the removal of the firemen's wash room below.
7. That a shower bath and porcelain-lined sinks be furnished for the use of the men.
8. That better and safer arrangements for dumping ashes at sea be made.

REPORT ON THE U. S. S. ALABAMA.

By C. J. DECKER, *Surgeon, U. S. Navy.*

The structural and general hygienic conditions of this ship were reported by my predecessor. The defects referred to have not been remedied. The ventilation of the ship as a whole is bad. For example, the shaft alley, which carries the steam pipes to and from the steering gear, has no outlet for the hot air, and this, of course, acts as an excellent heating apparatus for the after part of the ship. This is quite unnecessary when one considers that the usual temperature of the contiguous storerooms, magazines, and living spaces is 90° F., and an outlet duct should be put in.

The steam ventilating system is inadequate. Besides lacking in power, the steam driving the fans carries great heat to the very localities most in need of cooling.

In the central part of the ship, on the berth deck, are two large electric blowers that do more good than all of the other blowers together. They supply part of the rooms inside the casemate armor and the adjacent gangways. In spite of this, however, the temperature in these rooms is always above 90° F. when the ship is under steam.

The average amount of light allowed to each officer's room is about 14 candlepower. From the fact that two-thirds of the rooms in the ship have either a deck ground-glass light or none at all; it is plain that evil results must follow eye work.

There are no bath tubs for either wardroom, junior, or warrant officers.

The slops from the sculleries on the berth deck are led into a cesspool, consisting of a cubical steel tank on the starboard side between the engine and firerooms. From this as a reservoir the slop is pumped up and overboard. Of course the foul sediments from decomposing foods must be scraped off frequently by hand. This seems an unnecessarily vicious process when these waste matters could be drained directly out of the ship without endangering her stability.

The other defect is at the ship's galley, which is too small to allow the cooking of but few articles for a meal. The bakery is far too small, and the space between the galley and the forward superstructure bulkhead is too narrow.

With these exceptions the ship is comfortable and healthy. The water supply is good, and the cold-air plant efficient. The accommodations for the sick on board are excellent, and the large operating and dressing room is of such great benefit as to warrant the construction of such a room in other ships.

REPORT ON THE U. S. S. BALTIMORE.

By T. A. Berryhill, *Surgeon, U. S. Navy.*

This ship was placed in commission May 6, 1903, after having been laid up and under repairs for about two years. Many changes were made. The captain's quarters were removed from the berth deck, aft, to the poop cabin, where the admiral's quarters were also installed. The ship has received an entirely new battery, and larger magazines have been provided for ammunition.

The ship was placed in commission before she was ready for sea so that she might take a crew from the receiving ship, which was overcrowded. Several cases of mumps, measles, and itch developed among the crew soon after their being received on board. These cases were isolated, or sent to hospital. Disinfection and inspection soon freed the ship, and there has been no further trouble from these diseases.

The ship attended the summer maneuvers on the coast of Maine, and in October went to Santo Domingo, where she remained a month. The health of the ship's company during this time was quite good, but at San Juan, P. R., where we went for coal, the men were given liberty on shore with the result that we had more cases of venereal diseases than I had ever seen before on board ship. The apprentice boys and young landsmen were the principal sufferers.

One-fourth of our crew is made up of apprentices, while the majority of the remainder are landsmen for training or ordinary seamen who have been landsmen for training. Making a comparison between the landsmen and apprentices, it is found that almost all the landsmen are men, and can do the work of men; that they are intelligent and amenable to discipline, while obedient and willing workers. The apprentices are usually children and subject to all the ills of a child. They are not obedient, and have the usual boyish disinclination to work.

I find that many landsmen are shipped with physical defects, which frequently send them to the hospital or cause their discharge.

The firemen and coal passers of this ship are very much too light for the work. A man weighing 120 or 130 pounds is too light to work in the fireroom or bunkers. Some rule in regard to the size and weight of men to be shipped for the engineer's force, should be made.

The ventilating system for the living quarters is on the exhaust plan, by means of two Sturtevant electric blowers. The air on berth deck is good in port and during pleasant weather at sea on account of the many hatches and air ports, but during cold or stormy weather, when the hatches and ports are closed, the artificial ventilation is not sufficient to keep the air pure.

The sick bay is on the berth deck in the eyes of the ship. It has a bathroom and water-closet attached, with hot and cold, fresh and salt water. The dispensary is further aft and is well arranged. It also has hot and cold water. In the middle of the sick bay is a hatch leading to the equipment storeroom, and forward is situated the only entrance to the paint locker. The anchor chains lead through into the chain lockers, which are below, and open into the sick bay. The chains are not boxed. The sick bay is a busy place with the painter passing through, and the crew removing and replacing articles in the storeroom. It is very noisy also, and at sea is the most uncomfortable place in the ship. At present the junior officers' mess room has been transferred to the medical department, and as long as there are no junior officers' mess we will be allowed to use it. It contains the operating table, steam sterilizer, and the incubator.

Although there have been many sick days among the crew, I consider the ship healthy. Most of the complaints were mild and occurred among the young men who had never gone to sea and were becoming adjusted to ship's life.

REPORT ON THE U. S. S. MAYFLOWER.

By Eugene P. Stone, *Surgeon, U. S. Navy.*

There has been no serious sickness on board during the year and very few cases of contagious disease, none of which originated on board or spread among the crew. The only diseases whose causation can be attributable directly to the ship are the cases of thermic fever and heat prostration that occur among the engineer's force whenever the ship has a run lasting more than a few days. These are due to the excessive heat of the engine room and the unhygienic quarters that many of these men occupy. The recent passage from Washington to Colon, which lasted seven days, caused a number of admissions to the list from the effects of heat; many others were under treatment; and the sick list would have been still further increased if it had not been that the impending breakdown of a large part of the engine-room force was so evident that during the last two days of the voyage stimulants and treatment were given to each watch as it came off duty.

Of the changes made to improve the healthfulness of the ship, the most noteworthy one has been removing the solid bulkhead of the galley and substituting latticework. This has very much improved the ventilation and reduced the heat of the galley. In the sick bay the glass slab for the top of the dispensary counter has been put in place and the bath tub urged in the last report has been authorized, but there has been no opportunity to install it. The ice machine has been improved.

To briefly recapitulate the recommendations of last year that have not been acted upon, the following may be mentioned, viz: (1) Sheathing the sides of the berth deck compartments in which the men sleep, to prevent sweating and consequent dampness. (2) Making a larger wash room for the crew and increasing the facilities for bathing for the engine-room force. (3) Furnishing the crew with cool drinking water, especially in the hot climate in which the ship is now serving. Tepid drinking water is a veritable hardship, and especially so when the crews of most of the other ships have the water cooled. (4) Relieving the great heat of the engine room and the unhygienic conditions of the bunk room, located between the fireroom and the engine room.

The ventilation in the latter has been improved recently by leading a windsail from an electric blower into the compartment, but it is not a suitable living room, especially in this climate. It is very hot and the air is stale most of the time. Sixteen men sleep there. (5) The room for the junior officer on the lower berth deck is absolutely unhealthful, being without ventilation and excessively hot. There is an air port in the room, but it is so near the water line that it can not be opened. In this tropical climate, the heat, lack of ventilation, and loss of sleep consequent on these conditions, were having such a bad effect on its occupant that it was recommended that he be given other sleeping quarters. There is a space along the corridor, where the rooms of the other officers are located, and which is now occupied by the armory and the pay office, that should be made into an officer's room.

The health of the ship since being off Colon has been surprisingly good. Colon is a very unsanitary town, located on low land. There are about the town many pools of stagnant water, overgrown with rank vegetation or covered with green scum, while back of the town is a marsh. Many species of mosquitoes abound, including the *anopheles* and *stegomyia.* There is no epidemic disease at present prevalent, but conditions are favorable for a rapid spread if an epidemic should be started.

If a large naval and marine force is to be maintained for any length of time in the vicinity of Colon, it would seem to be a very suitable occasion for the employment of a hospital ship. The present condition of Colon and the canal strip is so bad that patients would do much better on a ship anchored far enough from the shore to be out of the mosquitoes' range of flight than at any improvised shore hospital. Patients should be sent to the hospital ship, not only from the ships but from the shore camps.

If it were thought best to have a permanent hospital on shore, the site of the French hospital is probably the best in the vicinity of Colon, being on the windward side of the town, located on the water, swept by the prevailing sea breezes, and well away from the marshes back of the town. It is improbable, however, that the present hospital buildings could be utilized, as they are dilapidated and infected.

REPORT ON THE U. S. S. HARTFORD.

By A. M. D. McCormick, *Surgeon, U. S. Navy.*

The beginning of the year found this ship at Villefranche, and since then the following ports have been visited: Marseille, Gibraltar, Funchal, San Juan, Key West, Mobile, Pensacola, Habana, New York, Annapolis, Newport News, New London, Boston, Nahant, Bar Harbor, Rockland, Norfolk, Newport, Philadelphia, Fortress Monroe, Savannah, and New Orleans. There were no epidemics existing in these ports, and general liberty was given in all without any unpleasant results.

During the year there have been in all 1,200 boys on this ship. Of these 850 were apprentices and 350 were midshipmen. There is also a crew of 250 men, the majority of whom have been changed, as the ship is in her fourth year of commission, and the terms of enlistment of the original crew have expired. The complement of the ship is about 500. The percentage of sick has been unusually small. For the first quarter of the year it was 1.20, for the second quarter 0.86, for the third quarter 0.48, and for the fourth quarter 0.91. In the first quarter there were 4 cases of typhoid fever treated on board. This fever had its origin in the drinking water at Athens, Greece, where the disease was prevalent. Everyone had been cautioned against drinking water on shore unless it had been bottled. Two victims of the fever acknowledged drinking the water in carafes on the restaurant tables, which they thought to be bottled. The daughters of our minister to Greece were suffering from typhoid at the time of our visit. They had acquired the fever from eating lettuce salad. Queen Olga, while on a visit to the ship, took a great interest in the welfare of the boys and expressed the hope that they had been cautioned against drinking the water on shore.

For a period of five months there were no transfers of the sick to hospitals, all cases having been treated aboard ship. The capacity of the sick bay has been taxed on several occasions during epidemics of grippe and tonsillitis. While the four bunks were occupied by fever patients every precaution was taken to disinfect excreta, bedding, etc. After their recovery the sick bay was painted.

In May the ship was ordered to the navy-yard, New York, to undergo changes so as to accommodate the midshipmen during their summer cruise. These changes consisted in the installation of pantry, wash rooms, lockers, stationary tables, and the setting apart of the men's closets on the gun deck for the midshipmen's use, the men using the head on the spar deck. The midshipmen were divided among three ships, each ship having about 115, and two shifts were made during the cruise, so that all served on each ship. Their health was excellent while they were on the *Hartford*, only one serious case occurring, that of broncho-pneumonia, which was successfully treated.

After the midshipmen were detached in September the ship was ordered to Newport to take on a draft of 250 apprentices. As diphtheria had been prevalent among these boys since the first of the year, I protested against receiving the draft on board, considering it an unwise measure from a hygienic standpoint, especially as the ship was to proceed to the navy-yard, League Island, for repairs. The protest was not sustained by the commandant of the station. Fifty boys were received each day until the draft was completed. Surg. G. H. Barber made a culture from the throat of each boy, and out of each 50 there were two or three in whose throats the bacilli of diphtheria were found. These, of course, were detained on the island. Doctor Barber did his work well, for not a single case developed on board. Preparations were made for an outbreak, however, and all inflammations of tonsils and pharynges were watched and treated with great care. Several suspicious cases were immediately transferred to the naval hospital, Philadelphia, with the request that cultures be made. This was done by the board of health of the city and were found to be free from Lœffler's bacillus. Many cases of follicular tonsillitis occurred during the fall months, but they were generally of a mild type, the febrile symptoms being often very slight when the tonsils were covered with exudation.

A great improvement in the comfort and hygiene of the ship has resulted from the shellacking of the gun deck, which is the living place for the apprentices and for the majority of the crew. It is now possible for them to live in a clean and dry atmosphere, with a consequent diminution of coughs, colds, and sore throats. New and improved water-closets have been installed for the sick bay and also for the use of the officers. The general mess system continues to give satisfaction, and the ship's company has the appearance of being well fed and cared for.

REPORT ON THE U. S. S. SAN FRANCISCO.

By GEORGE ROTHGANGER, *Surgeon, U. S. Navy.*

In the past year the *San Francisco* has cruised in the Caribbean Sea and in European waters. During the cruise in the West Indies the ship was not in any port in which an epidemic disease was present. Two members of the crew developed variola during our stay in Beirut. One case was of the confluent type and very severe. The other was a mild attack of the discrete variety. Both cases recovered fully. Neither of these men presented evidence of previous successful vaccination. Both had been vaccinated twice previously but unsuccessfully. The measures taken to prevent the further spread of the disease on the ship were the transfer of the patient ashore as soon as the diagnosis was made positive by the appearance of the eruption, the disinfection of the sick bay and all articles brought in contact with the patient, and the re-vaccination of the crew. The first to be re-vaccinated were those who presented the least evidence of previous successful inoculation. The virus used was glycerinated lymph, the product of a French vaccine farm, and 78.44 per cent of the personnel of the ship were successfully vaccinated with this virus, notwithstanding the fact that a year and a half previously the crew were vaccinated, with 68.24 per cent successful. The vaccination of April, 1902, was performed with points. The advantage of the glycerinated lymph is strikingly shown when the percentage of success in those not previously successful is compared in each series, being 95.24 per cent in the one and 70.58 per cent in the other. This and a similar experience in the United States Naval Hospital, Brooklyn, N. Y., in June, 1901, has convinced me of the superiority of the glycerinated lymph. With the use of glycerinated lymph at our recruiting stations and on the receiving ships there could not be 21 men of a ship's company without a previous successful vaccination, as was the case on this ship.

Variola is always present in Syria. There is no registration of cases of contagious disease. Isolation of the disease is not attempted. The patient continues to associate with his family, who thus aid in the spread of the disease. If he dies, a public funeral is held and the coffin carried through the street by the friends of the deceased. Vaccination is practiced only fitfully. There is a popular superstition that during the prevalence of variola vaccination is likely to bring on an attack of that disease. At Beirut the disease was said not to be epidemic. From the number of cases and deaths which were learned of during the month of December, however, the disease should have been regarded as epidemic and of a severe type. Our patients were transferred to the Johanniter Hospital, which is under the German order of St. John. The medical and surgical staff are Americans, members of the faculty of the Syrian Protestant College, an American institution which gives a medical course in addition to others. Cases of contagious disease are treated in an annex built especially for that purpose.

REPORT ON THE U. S. S. DIXIE.

By R. M. Kennedy, *Surgeon, U. S. Navy.*

The *Dixie* was commissioned October 1, 1903, at the navy-yard, New York.

Medical department.—The medical department of the ship is situated on the forward berth deck. The entire sick quarters, with its excellent equipment, is admirable. Its very unfortunate situation is regarded as a serious defect, however, and not calculated at sea, for obvious reasons, to give a patient that comfort which he justly deserves and which is so necessary to a favorable issue in a serious case.

The sick bay contains 20 iron bunks, supplied with hair mattresses and pillows of an excellent quality and thickness, a large porcelain washstand with faucet, one large linen locker, writing table for patients, desk for medical officers, and three electric fans. There is fair illumination by electric lights and ten large air ports give an abundance of natural light. It is wished particularly to draw the Bureau's attention to the bunks referred to, designed by Naval Constructor Nutting, U. S. Navy, which are made of iron, measure 72 inches long by 24 inches wide, have four movable sides, 6 inches high, and spring bottoms. Each bunk has four short legs, with knobs, which move in grooves in supporting frames and lock when in position. These frames are in turn supported by stanchions, and can, if desired, be easily detached therefrom.

The advantages of this bunk are its simplicity, lightness, neatness, and comfort, the economy of space (two bunks being arranged together, one above the other), and the ease and rapidity of storing it away when not in use. Finally, and most important, is the fact that it can very easily be drawn from its supporting frames, without the least discomfort to the patient, and used as a most excellent and comfortable stretcher, its four legs supporting it on the ground, should occasion arise to put it down.

The bathroom is of comfortable size, containing an enameled tub, supplied with hot and cold water, shower, and faucet. The room has two large windows and a tile floor.

The water-closet is not used on account of its poor ventilation, absence of air port, and an insanitary type of bowl. It is recommended that either an air port be provided or the bowl be removed and the space utilized for storing patients' clothing, soiled linen, etc. It has a tile floor.

The operating room measures 10 by 14 feet, has a tile floor, three large air ports, two large sliding doors, one communicating with the ward, the other with the berth deck near a large hatch, where an injured man can, with perfect ease and comfort, be lowered to or raised from the operating room to any deck. This room is supplied with a white porcelain sink, 18 inches by 24 inches, with faucet. About

4 feet above this is a shelf holding four 2-gallon irrigating bottles (complete). There is also a shelf for the sterilizer, which, by the way, should be electrically operated.

On overcast days the natural light is insufficient for operating purposes, but a cargo light recently installed gives a perfect light. The room contains a small chest for sutures, needles, and small articles, a surgical instrument cabinet, and a chest of drawers for surgical dressings, bandages, etc.

The room is supplied with an operating table, an instrument table, and a chair, all white enameled, and is kept at a comfortable temperature by a large electric fan. The room is painted with white enamel paint.

The dispensary is lighted naturally by one large air port, and artificially by two electric lights. It is of good size, has plenty of drawers, ample shelving, which is easily cleaned, and one large porcelain sink, 24 by 36 inches, with faucet. The counter is entirely covered by heavy French glass. There is also a very comfortable bunk for the hospital steward.

The medical storerooms are two in number. One is well lighted by a large air port, is very roomy, well suited for its purpose, and communicates directly with the dispensary; the other is on the orlop deck, fairly large and accessible.

Evaporating plant.—The evaporating plant of this ship is rated at 12,000 gallons capacity per diem. Since the ship has been in commission its largest daily output has been 10,500 gallons. This is of sufficient quantity to supply the boilers with the necessary feed water and furnish the ship's complement with ample fresh water for all purposes.

There are three separate evaporators of the standard navy pattern. Each one is rated at 4,000 gallons per diem.

The location of the evaporator room is on the gun deck over the forward fireroom. It is kept cool and clean, which is a help in every way to the proper operation of the plant.

There are two Allen dense air machines located on the gun deck, just forward of the evaporating plant and in the wake of two large cargo ports, which make this location cool and comfortable. Each machine is rated at 2 tons capacity and has a freezing box capable of freezing 36 cakes of 25 pounds each every six hours. In other words, both machines, working on the freezing boxes alone, will freeze 1,800 pounds per diem.

There are four cold-storage rooms located on the berth deck immediately below the ice machines. One is for the commanding officer, of 132 cubic feet capacity; one for the wardroom officers, of 231 cubic feet; one for the warrant officers, of 132 cubic feet; and one for the crew, of 810 cubic feet. It is estimated that 50,000 pounds of fresh meats can be stored in the crew's room, 10,000 pounds in the wardroom officers' room, and 7,000 pounds each in the warrant officers' and commanding officer's rooms.

The pipes in these rooms are so arranged that any room may be cut out and the others kept cold.

Both the ice machines and the cold-storage rooms have been satisfactory. The rooms are easily maintained at a temperature below 32° F., and at the same time the ice boxes for the commanding officer, and the wardroom and warrant officers have been kept supplied with a sufficiency of ice, even while the ship has been in the Tropics.

The cold-air pipes are also connected to the crew's two drinking-water scuttle-butts. The cold-air travel is from the machine to the freezing boxes, from the freezing boxes to the cold-storage rooms in the following order: Commanding officer's, wardrooms', warrant officers', and crew's; then to the scuttle-butts, and from the scuttle-butts to the machine.

Ventilation.—The exhaust and supply systems of artificial ventilation are used on board this ship, all blowers being electrically operated. The exhaust blowers of one-half horsepower each, are three in number, two of which ventilate the crew's head forward on the gun deck, and the other the wardroom and warrant officers' bathroom and water-closet on the after gun deck.

The supply blowers of 5 horsepower each, are of 50 inches diameter, and are numbered 1, 2, 3, and 4, from forward aft, their main supply being specified below:

No. 1 is situated on the forward berth deck and supplies the sick bay by two 6-inch louvres; dispensary, by one 4-inch; operating room, by one 4-inch; medical storeroom, by one 4-inch; water-closet, by one 4-inch; bulkhead No. 53, by four 8-inch; each storeroom on forward orlop deck, by one 6-inch; and forehold, by two 6-inch.

Blower No. 2 is also located on berth deck, frame 65, and supplies this deck between the bulkheads 53 and 89 by four 8-inch louvres; main orlop deck by six 6-inch and six 4-inch, and the main hold by two 12-inch.

Blower No. 3 is located on the after gun deck, frame 145, and supplies the dynamo room, by two 12-inch louvres; machine shop, by two 12-inch; after magazine by four 10-inch; engineer storeroom and electric storeroom by two 4-inch.

Blower No. 4 is situated on the after berth deck and supplies this deck by eight 8-inch louvres; wardroom, by four 6-inch; after magazine and handling room by one 12-inch.

The air is exhausted from all magazines to the berth deck. The supply for blowers is taken from the spar deck by four 24-inch pipes. The ward of the sick bay is also ventilated by a 10-inch pipe from the spar deck, and the dynamo room by an 18-inch pipe from the spar deck.

Except the exhaust blowers for the water-closets and crew's head, and four 6-inch supply louvres for the wardroom, there is no artificial ventilation on the gun deck, and the air on this deck when the ship is engaged in transporting large numbers of men, particularly when the cargo and air ports are closed, is frequently foul, especially amidships, just forward of the officers' water-closets on the starboard side and the corresponding point on the port side.

It is earnestly recommended that when a ship of this type, engaged in transporting large numbers of men, arrives at a navy-yard, and time permits, the crew be temporarily transferred to some suitable place ashore and the ship thoroughly disinfected, the entire interior being painted after disinfection is accomplished.

A laundry aboard ships cruising in tropical waters is really a necessity, and should be established, as it would require but little space, prove a decided convenience and comfort, and be a precautionary measure against infectious diseases.

Bathing facilities.—(*a*) The crew's shower-bath room measured 10 by 15 feet. It is situated on the port side forward, has eight showers, each separately inclosed and supplied with hot and cold salt water, a tile floor with drain, and is light and cheerful.

(*b*) The crew's wash room measures 10 by 15 feet; is located port side forward; is light and cheerful; has tile floor with drain; is supplied with 16 basins, and faucets for fresh and salt water.

(*c*) The shower baths in the crew's head are four in number, two on the port side and two on the starboard side. They have hot and cold salt-water supply and tile floor.

(*d*) Chief petty officers' wash room measures about 10 by 10 feet, has 4 basins and faucet for salt and fresh water.

(*e*) Wash room for engineer's force is situated amidships, directly over a boiler; has 10 basins with faucets for salt and fresh water; also two showers, with hot and cold salt water, and a tile floor with drain.

(*f*) Warrant officers' bathroom is well lighted and excellently equipped; is located fairly well aft, starboard side; contains white enameled bath tub and shower, with hot and cold salt water, and a water-closet.

(*g*) Wardroom officers' bathroom is just abaft that of the warrant officers, and is similarly equipped.

(*h*) There is also a shower bath for officers in the after port side of wardroom. The after cabin contains bathroom, urinals, and water closet, conveniently located, with tile floor.

Water-closets.—(*a*) For crew. These are situated forward and consist of two enameled urinals about 18 feet long, constantly flushed with running water, with tile floor. There are also 16 seats on the port side, and 20 seats on the starboard side. The trough is kept constantly flushed.

(*b*) For chief petty officers. These are located on the port side forward. There are three water-closets with tile floor.

(*c*) For warrant officers. One closet with tile floor is situated on the starboard side, aft.

(*d*) For wardroom officers. This has four closets and two urinals. The bowls are of the "pan" style, and are, of course, insanitary.

Cells.—This ship is provided with five large cells on the starboard side, forward, which measure about 11 by 5 feet. Each is provided with one large air port and with steam heating coils.

REPORT ON THE U. S. S. ILLINOIS.

By Norman J. Blackwood, *Surgeon, U. S. Navy.*

The general sanitary condition of the ship is excellent, and at no time could a disease be traced to anything within the ship itself. The sick bay and dispensary of this ship are of the best in fittings and general equipment, and in the matter of cleanliness one great advantage has been found in the fact that the bulkheads are all painted with smooth enamel paint instead of the rough cork paint now so common on steel ships. There has been absolutely no sweating, and there are no pockets or crannies in which dirt may lodge, and thus become a nidus for the spread of disease.

The bathroom and general plumbing system are excellent, with the exception of the basins on the port side in the dispensary and examining room, which, instead of draining overboard as they do on the starboard side, empty into two large copper buckets, which must be carried up on deck to be emptied, thus causing an unnecessary amount of labor. This could be very easily remedied, and it should be done at the first opportunity. The great defect of the whole compartment is the absence of a separate operating room, such as exists on the *Alabama*, the sister ship of the *Illinois*. The examining room, so called, is now utilized for all minor operations and dressings when there are patients in the sick bay, but this room is too small and the space too cramped to perform any of the major operations, in which cases the sick bay proper must be used, the operating table being screened off from the rest of the room.

With the aid of the electrical department of the ship a number of conveniences have been added to the equipment of the medical department, such as a large four-lamp operating light with a porcelain reflector and two electric sterilizers, one for instruments and the other for dressings, which appliances are almost an absolute necessity on modern ships. The ordinary sterilizer now supplied can not be properly or quickly enough heated with the alcohol lamp which accompanies it and the galley can not be used at all times. All modern ships are now supplied with plenty of electrical power and this furnishes a ready and clean method of obtaining heat for this purpose. It would therefore seem that such an apparatus should accompany every outfit for ships.

At general quarters the large, well lighted and ventilated mess room of the chief petty officers has been substituted for the small and inconvenient mess room of the warrant officers for a dressing station. With four Ames boards in different parts of the ship and two dressing stations to look after, the force of two nurses, a hospital steward, and one medical officer have more than they can possibly attend to with any degree of efficiency.

Attention has already been called to the condition of the midship section of the berth deck (that behind armor) in the last sanitary report of this ship, but as nothing has yet been done as a result of that report it seems proper to again call attention to it. In this compartment are situated the rooms for the junior and warrant officers, the mess room for the latter, and two large steam blowers, the whole being placed immediately over the after blowers. As a consequence the temperature of these rooms ranges from 95° to 101° at all times when the fires are lighted, and a blast of air pours out of the blower room into the passages at a temperature of about 110°. In such a temperature it is impossible to expect people to rest and sleep and be able to do efficient work in the daytime, and consequently these officers are usually forced to leave their rooms and sleep on deck when in the Tropics. This condition could be vastly improved by removing the steam blowers and substituting electricity, as should be done in every case on the ship, and by placing asbestos or some other nonconducting material on the decks. In ships under construction where rooms are to be placed in similar positions, a double deck with ventilated air space should be placed under these rooms. The ventilating air for this compartment comes from two large cowls placed close alongside of the smokestacks and, as a result, they are constantly at about the same temperature as the smokestacks, the air being thoroughly heated before it gets down to the berth deck. These ventilating cowls, as well as all others for supplying fresh air to the inner parts of the ship, should be placed well forward and screened, thus removing them from the heat as well as from the cinders which constantly pour forth from the smokestacks whenever the ship is under way. The mess room of the junior officers, situated on the main deck, has no means of ventilation other than a small skylight over the center and three doors opening on the main deck, and at sea, or during bad weather, the place becomes close and stuffy. Some means of obtaining fresh air should be provided in this room.

The engineer's workshop is very hot, the average temperature, as obtained by careful observations, being about 120° when all fires are lighted and it frequently rises to 124°. The main steam pipes pass through this room and the only fresh air that enters comes from four small louvres, two in each room, the air of which is at a temperature of about 98°, it having come from well forward on the splinter deck and in close proximity to the boilers. This room is the receptacle for all the hot air on this deck, the forward bulkhead being next to the after boilers and two doors, which are necessarily always open, connecting directly with the engine room. The radiation from both main steam pipes and the hot air coming down the ammunition passages from all parts of the splinter deck make it almost useless as a workshop. The thermometer hanging over the lathe usually registers 122°, while that over the shaper ranges from 114° to 122°. There is no way for this hot air to get out except as it is forced out by the ingress of more hot air through the four small louvres. This condition should be remedied by cutting an opening in the overhead deck and connecting it with the fresh air above the superstructure by an air shaft in which should be an electrically controlled fan capable of working either way.

The demand for dental work in a large ship's company is very great, either on account of lack of care in the original examination or from the ordinary degeneration of teeth in people who do not properly look after them. The importance of good teeth as an aid to digestion, and thus as a most important element in the general health of the ship's company, can not be too highly estimated. Realizing this, when the ship went to Pensacola in March, arrangements were made with a dentist on shore to come off to the ship two days each week and attend to the men's teeth.

The need for a hospital ship is felt more and more in this fleet, especially when for so long a time in a place like Culebra, where the nearest hospital is San Juan.

REPORT ON THE U. S. S. CLEVELAND.

By S. G. Evans, *Surgeon, U. S. Navy.*

The ship was placed in commission at the navy-yard, Portsmouth, N. H., on November 2, 1903, and has therefore been in service only a few months, during which period she has been a very short time at sea, so that few opportunities have presented themselves for a thorough study of the ship from a sanitary point of view. Considering the climatic conditions in the places visited by the ship during this period, the health of the ship's company has been excellent and, barring an occasional case of catarrhus epidemicus and a few cases of rötheln, no infectious diseases have appeared. The cases of rötheln were of the mildest type, and the disease was easily controlled on board by means of the free use of corrosive sublimate and the formalin lamp.

The *Cleveland* is a sheathed, protected cruiser, built at the Bath Iron Works, Bath, Me., and launched September 21, 1901. She is 292 feet long, with 44 feet beam, has a displacement of 3,200 tons, and a speed of 16.5 knots under forced draft.

Her armament consists of ten 5-inch guns, two 1-pounders, eight 6-pounders, 4 Colts, and 1 fieldpiece.

Ventilation.—I cannot too strongly condemn the ventilating system. It is accomplished by 16 sets of Sturtevant blowers, some of the steel-plate type, and some of the cast-shell type, all driven by electric motors. In addition to the ventilating blowers there are 3 steam-driven fans for forced draft. Of the ventilating sets, 8 are supply and 8 are exhaust. The following table will give an idea of the system:

Set 1: One-half horsepower, 2,230 revolutions per minute, exhausting 342 cubic feet of air per minute from the crew's water-closets.

Set 2: One and one-half horsepower, 1,220 revolutions per minute, exhausting 1,210 cubic feet of air per minute from berth deck and storerooms forward.

Set 3: Two horsepower, 1,030 revolutions per minute, exhausting 2,150 cubic feet of air per minute from berth deck and storerooms forward.

Set 4: Three-fourths horsepower, 1,650 revolutions per minute, exhausting 967 cubic feet of air per minute from workshop, wash rooms, and berth deck.

Set 5: Three-fourths horsepower, 1,650 revolutions per minute, supplying 695 cubic feet of air per minute to shell rooms and storerooms forward.

Set 6: Two horsepower, 1,030 revolutions per minute, supplying 2,150 cubic feet per minute to dynamo room and magazine.

Set 7: Same as set 6.

Set 8: One horsepower, 1,390 revolutions per minute, exhausting 967 cubic feet per minute from dynamo room.

Set 9: Four horsepower, 900 revolutions per minute, supplying 4,520 cubic feet per minute to engine room.

Set 10: Same as set 9.

Set 11: Three-fourths horsepower, 1,650 revolutions per minute, exhausting 695 cubic feet of air per minute from officers' toilet and bathrooms.

Set 12: One and one-half horsepower, 1,220 revolutions per minute, supplying 1,210 cubic feet per minute to magazines and storerooms.

Set 13: One horsepower, 1,390 revolutions per minute, supplying 967 cubic feet per minute to after magazines and storerooms.

Set 14: Three-fourths horsepower, 1,650 revolutions per minute, supplying 695 cubic feet per minute to steam steering room.

Set 15: Three-fourths horsepower, 1,650 revolutions per minute, exhausting 695 cubic feet per minute from steam steering room.

Set 16: Two horsepower, 1,030 revolutions per minute, exhausting 2,150 cubic feet per minute from officers' quarters.

The great mistake has been made in having the exhaust in most of the living spaces, with supply in the storerooms and below, the result being that the heated air from below comes up and fills the living spaces. This is especially true in the wardroom officers' quarters, where the heat arising from the steam steering room renders the quarters almost uninhabitable, even in the climate of Key West.

It is earnestly recommended that the system be changed to supply in all living spaces, and that the blowers be increased in size and effectiveness.

The crew space of the vessel is about 52,041 cubic feet, exclusive of the officers' quarters, and as the complement is 305 there is an average of 170 cubic feet per man. No complaint can be made of the crew space on the gun deck, for this deck is airy and well ventilated. With a supply system of ventilation the berth deck could also be made sanitary and comfortable.

The heating system is an excellent one and gave a sufficient amount of heat even in the extreme cold weather of the past winter at Portsmouth, N. H., and New York.

Water.—The water supplied by the distilling plant has been sufficient in quantity and generally of excellent quality. The distilling plant is located in the after end of each engine room and consists of two evaporators and two distillers. Each evaporator has a capacity of 5,000 gallons per day and each distiller about 4,000. The location of the plants, however, should be changed, as the engine rooms are already very much crowded, the evaporators taking up most of the after part of each room, and this renders accidents exceedingly liable to occur. The danger of infection from the drinking cup at the scuttle-butt exists on this as on all ships, and each scuttle-butt should be supplied with a suitable enameled receptacle for holding the cup in some antiseptic solution.

Food.—Since the introduction of the general mess system and the enlistment of a special branch of cooks and bakers, no fault can be found with the food on most ships. Here it has been uniformly of excellent quality and sufficient in quantity.

The crew's galley, however, is too small, and the bake oven and dough trough are crowded into the same space. The heat is too great for the proper mixing of the bread, and it is recommended that the dough trough and bake oven be moved outside the galley inclosure.

The officers' galley is also insufficient in size, as there are only two openings in the top, and the cooking for the captain's, wardroom, and warrant officers' messes has to be done in this one galley. I would also call attention to the lack of bathing and washing facilities for the mess attendants. A special place should be provided for them convenient to their work.

Bathing facilities.—The officers are well supplied with bathing facilities, there being two bathrooms, with tub and showers, for the wardroom and one for the warrant officers, but the bathing facilities for the crew are inadequate, consisting of only six showers located in the manger, supplied with cold salt water only. It seems to me that needle baths, such as are used in most of our public institutions, could be installed on board ship and hot water supplied by means of economy heaters.

Ice plant.—The ice and cold-storage plant works satisfactorily, but is not of sufficient capacity in very warm weather. It is an Allen dense-air machine of 1 ton capacity and should be replaced by one of 2 tons.

Firemen's wash rooms.—The firemen's wash rooms are located on the berth deck forward and seem ample in size, but are, as usual, poorly ventilated, difficult to keep clean, and the plumbing is far from satisfactory.

Light.—The ship is lighted throughout by electricity and the supply is ample, except in the officers' staterooms when cruising in warm weather and the fans in the room must necessarily be kept running. Under such circumstances there is only one 16-candlepower light in each room, which is insufficient, even though each room has an air port.

Quarters.—Nothing can be said in criticism of the quarters, either for the officers or men. The former are exceptionally large for a ship of this size and the crew is particularly well housed.

Clothing.—The clothing of the men is of the regulation pattern and material and requires no comment, except that I wish to add my protest to that of many medical officers against the underclothing which is issued to the men for wear in the Tropics. A much lighter material of cotton should be used.

Physique.—In overhauling the crew I was struck by the poor physique of many, so often noticed on board ship of late. If more care was exercised in examinations for enlistment the sick list of most ships would be materially smaller.

Decks.—I can not too strongly condemn the so-called boottopping now issued for use on the decks of our ships in place of shellac. It never properly dries in hot weather, is always sticky, and every particle of dirt adheres to it firmly. With the modern linoleum and shellac the decks of our ships can be easily kept in a perfect sanitary condition. This can not be done if the ferric-oxide compound is used.

Heads.—The water-closets for the crew, two in number, are well situated on the gun deck in the forward compartment, one on each side. They are ample in size and well ventilated, but the plumbing is bad. They should be immediately removed and replaced by others in which the plumbing and materials used are satisfactory. They are disinfected every other day, and kept as sanitary in condition as is possible under the circumstances.

Sick bay.—The sick bay is situated on the port side of the gun deck forward, in the second compartment. This is a very poor situation for various reasons. It is directly between two 5-inch guns and in a compartment where the crew congregates, and is therefore noisy in the extreme. Again, it is in the most exposed part of the ship, and is too small for the complement of the vessel, containing only three bunks with no room for hammocks. Unquestionably the sick bay of any ship should berth at least 3 per cent of the crew. There is no room in the sick bay for an operating table, and very little for anything else, and the operative work is done under the most trying conditions.

The sick bay bulkheads are of corrugated iron and do not extend to the deck above. leaving an open space of several inches. This precludes the possibility of at any time sterilizing the sick bay. Every sick bay or compartment for the sick should be so constructed that it could be rendered absolutely air-tight, and corrugated iron should not here be used for bulkheads.

The sick bay bathroom is all that could be desired.

The dispensary is situated directly opposite the sick bay, and, although small, is satisfactory. Of course it should join the sick bay.

I can not speak too highly of the medical and surgical outfit now supplied to our ships. The improvement in the last few years in this respect must be extremely gratifying to every medical officer.

REPORT ON THE U. S. S. AMPHITRITE.

By C. De W. Brownell, *Surgeon, U. S. Navy.*

Since going into commission, on December 1, 1902, the ship has been stationed on the Atlantic coast, and Boston and Norfolk have been the limits of her cruising ground. During the past year there has been very little sickness.

While no monitor is a comfortable or healthy ship in the Tropics, the changes that have been made in the boilers and in the ventilating system will undoubtedly show a lower temperature and better air supply below decks than when the vessel was last in the West Indies. The new Babcock-Wilcox boilers are cased and allow more space between them and the main deck than formerly, giving a cooler and better ventilated fireroom. The present system of artificial ventilation by propulsion gives a better air supply on the berth deck and in the adjoining compartments than the former exhaust system. This system consists of six 48-inch Sturtevant fans, running at a maximum speed of 325 revolutions per minute. Two of these are situated on the berth deck forward of the fireroom, two in the engine room, and two between the engine and fire rooms.

Through two main trucks, running on each side from stem to stern, the living spaces below the main deck, wing passages, and the magazines and storerooms in the hold are supplied with air from the blowers on the berth deck.

Two large rectangular discharge pipes forward and aft of the fire and engine rooms furnish a natural exhaust.

All of the blowers receive air from ducts whose cowls are placed above the superstructure deck.

The coal bunkers are ventilated by exhaust draft through pipes leading to the smokestack. In port the air supply is considerably increased by natural ventilation through cowls attached to the deck lights.

The tanks are clean and the distilling apparatus in good condition. It furnishes, during a day of eight hours, 1,000 gallons of water.

The new bake oven, installed on the lower deck of the superstructure, lessens by that much the heat generated in the inclosed part of the vessel. As fires will always have to be kept up in one boiler for the dynamos, blowers, flushing system, and distilling, it will probably never be comfortably cool below the main deck.

Fortunately, however, there is space on the main deck, protected by double awnings, and on the superstructure for the majority of the crew to sleep when not on watch below.

It is much to be regretted that the ship is not provided with an ice machine.

REPORT OF THE U. S. S. FLORIDA.

By Lewis Morris, *Surgeon, U. S. Navy.*

Since going into commission June 18, 1903, this ship has been continuously at the navy-yard, New York, undergoing repairs.

The accommodations and berthing space for the crew, under navy-yard conditions, have been ample, especially in moderate weather, when the upper superstructure deck could be used, which makes a large, comfortable, well ventilated, living space, it being fitted with side curtains around its entire circumference.

The main deck inside the superstructure contains berthing space for about 64 men, together with captain's mess room, wardroom and warrant officers' staterooms and mess rooms, offices, and heads.

The crew's head is ample and the flushing system good.

It is unfortunate that in so modern a ship there are but two bathrooms, one for the commanding officer and one in the sick quarters.

The whole deck inside the superstructure is covered with linoleum and heated by steam.

The berth deck aft contains storerooms, captain's cabin, and wardroom officers' staterooms, with the steam-steering engine compartment in the extreme after part. Forward of the wardroom staterooms is the engine-room compartment, bounded on each side by a passage leading to the forward part of the berth deck. The latter, for a ship of this size, is large and comfortable, and gives berthing space to 89 men. Forward of this space on the port side are the dispensary, sick bay, water-closet, and bathroom. On the starboard side are the brig and additional berthing space.

The ventilating system of the ship, so far as can be judged at present, is ample, and it is believed that even with the ship at sea and hatches battened down, no discomfort would occur for want of a sufficient quantity of pure air.

The ship is heated throughout by steam, and up to the present time, though subjected to the rigors of two severe spells of weather, in one of which the thermometer reached 4° below zero, no discomfort has been felt.

The water supply is ample and is furnished by two evaporators whose capacity is about 2,500 gallons per day.

The sick bay, dispensary, bath and wash room, taken as a whole, are entirely satisfactory. The dispensary is sufficiently large and well ventilated. The sick bay contains four stationary bunks running fore and aft, along the inboard bulkhead, two above and two below, together with a wide transom running athwart ships against the bulkhead dividing the dispensary from the sick bay. This, up to date, has proved ample accomodation for the sick. The bathroom and water-closet are well fitted and efficient. The question of the use of cork paint may be submitted to the attention of the Bureau at this time, as the incongruity with regard to its use is very apparent in this ship. The entire sick bay and bathroom, ceiling and sides, are cork painted, rendering it a very hard matter to keep them clean and making it a constant source of possible infection. The dispensary, on the other hand, has not been touched with cork paint, nor have the sides of the berth deck, with the exception of the ventilating flues.

There is no ice machine on board, and, should the ship be sent to southern waters, its absence would be keenly felt.

The question as to the proper handling of the wounded and the center for surgical help on this ship in battle is still undecided. With the ship battened down, the only means of communication between sick bay and ship is by a ladder leading from the berth deck, through the dynamo room, along a narrow passage into the forward berth-deck space. This necessitates two right-angled turns and, with many injured, would cause congestion in the passage leading from the dynamo room to the forward berth deck which, in action, would have to be used as an operating room, the sick bay being too small.

The general health of the ship has been excellent.

REPORT ON THE U. S. S. RALEIGH.

By J. M. MOORE, *Surgeon, U. S. Navy.*

As the Bureau is already familiar, from past reports, with the structural characteristics and sanitary features of this ship, it is deemed unnecessary to enter into the details of her construction, other than those which relate to the alterations made in her interior economy since her last commission. While out of commission at the Portsmouth Navy-Yard the only radical changes made were in the steam engineering department and some minor changes in the heating and ventilating systems.

No change was made in the size or location of the sick bay, which remains on the berth deck, close up in the "eyes" of the ship. The dispensary was shifted from the port side of compartment A 123 to the starboard side of compartment A 121, which is a more appropriate location, being just outside of the sick quarters. It is small, but well lighted, ventilated, and equipped with all the necessary fixtures. The storerooms are situated just forward of the sick bay. They are adequate in size, but when at sea are damp and moldy, in consequence of leakage from the manger above, which it has been found impossible to remedy. The compartment allotted for the sick bay contains a total cubic air space of 1,840 feet. It is well lighted and ventilated by both natural and artificial means and is fitted with three folding metal bunks. On the starboard side, immediately contiguous to the hospital, is a bathroom with a water-closet and porcelain-lined bath tub.

The sick quarters are adequate for the accommodation of only about 2 per cent of the total ship's company. The main objection to the hospital or sick bay is its environment, it being inaccessible and situated in the midst of all the din and noise of the anchor chains, as well as the loud talk of the crew.

The ideal location for sick quarters is, unquestionably, the midship section of the main deck, which has the triple advantage of accessibility, a minimum of motion, and an abundance of natural light and ventilation.

The system of artificial ventilation on this vessel is on the exhaust principle, which is fairly efficient, though the combined method of extraction and propulsion would, doubtless, give a larger volume of fresh air per capita. The living spaces on the berth deck comprise the following compartments: Compartment A 121, with a total cubic air space of 4,116 cubic feet and 33 occupants; compartment A 122, inhabited by 43 persons and with 4,872 cubic feet of air space; compartment A 123, in which the brig is situated, having 4,722 cubic feet of air space and 50 occupants; and compartment 118, the quarters of the chief petty officers and marines, 65 in all, with a total air space of 8,324 cubic feet. When at sea these compartments are fairly well ventilated by means of four centrifugal fans, run at full speed at night, and the action of which is supplemented by windsails and hatches.

The engine rooms receive their ventilation through two large hatches and two steam blowers, which are adequate for the purpose.

The firerooms have eight steam blowers for forced draft and numerous large ventilating shafts which extend high up on the deck above. As the temperature in this compartment rarely exceeds 130° F., and as there have been so few cases of heat prostration and exhaustion, I infer that the ventilation is superior to that of the average ship in the Navy. However, it was found necessary to invalid to hospital during the year several coal passers and firemen who were physically unequal to the arduous and laborious duties devolving upon them. Therefore, I beg leave to suggest that in recruiting for these ratings a higher standard of physique be required than is exacted of those enlisting for duty in the other branches of the service.

The bathing facilities for the crew are ample, comprising three shower baths forward on the gun deck, for the deck force, and one shower, with a long trough and buckets, for the firemen, in the starboard alleyway on the berth deck, which is well ventilated by means of two hatches opening on the deck above.

The "heads," which are located under the topgallant forecastle, are of primitive design, consisting of iron troughs with wooden seats. These troughs should be lined with zinc, or some impervious substance, and fitted with urinals.

The wardroom and junior officers' bathrooms and water-closets are in the compartment just abaft the passageway into which open the rooms of all the officers quartered on the deck below the wardroom. The water-closets are wholly inadequate in size, and as the flushing apparatus and valves are generally out of order, the deck is not infrequently covered with 2 or 3 inches of mixed urine and water when the ship is under way. They are a nuisance of the most pronounced sort and a menace to health.

This vessel is heated throughout with steam radiators, which are found to maintain a fairly uniform and comfortable temperature.

The ice plant of the ship, a 1-ton Allen dense-air machine, works most satisfactorily, preserving the stores in four refrigerating rooms and keeping the water in the scuttle-butt cool, besides supplying daily about 120 pounds of ice.

The water supply has been of good quality and in sufficient quantity, and is furnished by two evaporators of the Department's design, with a capacity of 5,000 gallons a day.

The general mess and ration system which has obtained on board since the date of commission gives general satisfaction. The navy bake oven has also subserved a most useful purpose and proven a boon to all hands. It is to be regretted that there is no room on board available for a commissary store for the sale of sundries and knickknacks, which are so dear to the heart of the enlisted man.

A laundry plant, which would eliminate any possibility of contagion through laundry sent ashore, is much to be desired on board this vessel.

The thwart-ship bunks, with which this ship is fitted, are generally and loudly condemned, being uncomfortable and subversive of sleep and repose when at sea. They seem to possess some compensating advantages in the matter of hygiene and economy of space, though they are, doubtless, better adapted for use on battle ships, where there is a minimum of rolling motion.

The health of the ship's company during the past year has been good. Six weeks were spent in Aden during the hottest period of the year, while this ship was undergoing repairs necessitated by a breakdown in the engineering department.

As the death rate on shore from insolation alone was on an average of one a week, it was feared that the health of the crew would be adversely affected. However, it is gratifying to relate that there were no untoward results aside from one case of heat prostration and a few cases of thermic fever from unavoidable exposure to the rays of the sun.

There have been no epidemic diseases on board. The general health of the ports visited was good, with the exception of Port Said and Hongkong, where there were a few sporadic cases of plague and cholera. For that reason it was deemed best to deny all liberty in those ports. While in the Kowloon dry dock, however, a number of the crew left the ship without permission and remained overnight. Happily, no infection resulted other than that from venereal contact.

All fruits, vegetables, and other commodities sold by bumboat men were rigidly inspected.

Liberty, as a rule, has been freely granted, and the officers of the ship, including the commanding officer, have improved every opportunity to awaken in the crew an interest in football and other athletic games ashore, which, no doubt, exert a wholesome influence, keeping their minds diverted and their bodies occupied, as well as mitigating the tedium and monotony of ship life.

REPORT ON THE U. S. S. CONCORD.

By Ammen Farenholt, *Surgeon, U. S. Navy.*

This vessel was placed in commission on June 15, 1903, at the navy-yard, Mare Island, Cal., the officers and one-third of the crew coming from the U. S. S. *Boston* and the remainder of the crew from the receiving ship *Independence.*

During the six months in commission the following ports have been visited: Dutch Harbor, Alaska: navy-yard, Bremerton, Wash.; Astoria and Portland, Oreg.; San Francisco, Cal.; Acapulco, Mexico, and Panama. Republic of Panama.

In view of our probable future relations with the Isthmus, some interest attaches itself to this locality, and I submit the following short description:

The Gulf of Panama, formed by a northerly bend of the Isthmus, is 92 miles long and 105 wide, and has the city of Panama at its head. It contains three principal groups of islands, viz, the Pearl, situated at the entrance; a group of which Taboga is the largest island, about 9 miles south of Panama, and an inner group, consisting of Naos, Culebra, Perico, and Flamenco, which lies 2½ miles south of the city. The island of Taboga is well wooded, of considerable size, and possesses an excellent supply of water. On this island is a small village, the storehouses and supplies of the Pacific Steam Navigation Company, and a sanitarium belonging to the Panama Canal Company. An excellent quarantine station could be established here.

The inner group lies near the man-of-war anchorage, is picturesque, conical, and well wooded. Naos is used as the headquarters of the Pacific Mail Company. Flamenco, usually called "Dead Man's Island," is the most distant, and on its high, green sides can be seen monuments and mounds of the unfortunates who have died in the harbor on both naval and merchant vessels during the epidemics of fever so common here. Many of our ships' names are to be seen, and it was here that the victims of yellow fever from the Jamestown and Resaca, in 1866 and 1867, were buried.

From the usual anchorage abreast of the islands, Panama lies about 2½ miles north. La Boca, the Pacific entrance of the proposed canal and the site of the Panama Canal Company's wharf and railroad connection, is situated 3½ miles to the westward; and the ruins of the old city of Panama, built in 1518, and destroyed by Morgan in 1673, lie 4 miles to the northeast. Only a ruined tower is now left of the former wealthy and large city.

Directly behind the city of Panama rises Mount Ancon, an extinct volcano, the old lava streams of which form the plain on which Panama is built and render the inner harbor very shallow.

Panama has a population of from 20,000 to 25,000, over one-half being Jamaican negroes who came over during the old canal days. It resembles most Spanish-American cities in the appearance of the churches, streets, and houses. The sewerage is very deficient. An old sewer runs through a part of the city, but its connections with the houses, its ventilation, and its outlet are so badly planned that it is of no practical utility. Cesspools and surface drainage are the usual methods of sewage disposal.

The water supply is chiefly from cisterns, rain being collected from the roofs; some wells are used to obtain water for washing purposes, and from these the poorer classes get a supply for drinking. There has been an attempt to inaugurate a municipal supply by bringing water from the Rio Dulce, less than 15 miles distant, but nothing definite has been accomplished.

The hospital facilities are better and rather more extensive than might be supposed. The "foreign hospital," built by the old canal company, is well situated on the northeast side of Mount Ancon, about 2 miles from the city, and commands an excellent view of the city and bay. It is composed of a collection of pavilions and houses, is clean, in good sanitary condition, and has accommodations for 500 patients, although the authorities announce that many more than that number can be admitted.

The hospital of St. Thomas, situated in the heart of the city, is a semi-religious institution which is aided by the Government. It has accommodations for about 100 sick, but is in rather poor condition. The Bolivar asylum combines an orphan asylum and a small hospital.

The seasons are divided into a wet and dry. During January, February, and March the north winds prevail and no rain falls. In April the cool winds cease and the rain begins. During the summer the temperature is high and the rains excessive. In November and December the climate approaches that of winter and the rainfall is again apt to be considerable, while the months having the greatest rainfall probably have the greatest mortality. Yellow fever and malaria flourish with greater severity during the dry season, especially after periods of considerable drought, the explanation being that during such times increased opportunities are offered for the multiplication of mosquitoes, all varieties of which are present in the stagnant pools and in the collections of undisturbed water which furnish breeding places.

Few structural changes have been made in this vessel since her last commission, and her well-known features are practically unchanged. Galvanized iron bulkheads have replaced those of wood throughout the ship. Seven powerful electric blowers have taken the place of the former insufficient ones; the forward berth deck, after berth deck, sick bay, dynamo room, and the officers' quarters are each fitted with an exhaust blower, and the forward and after magazine each with a supply system.

The sick bay is excellent in arrangement and, for the size of the ship, commodious and ample. The space formerly used by the junior officers on the port side amidships, 16 feet long by 10 wide, has been allotted for this purpose. It contains four folding bunks, a transom, and a semicircular steel-gun support, which affords an excellent storeroom. Abaft on the outboard side, is a small room containing a bath tub and toilet, and inboard of this, in the site of the old armory, is the dispensary.

The health of the ship has been excellent; 35 per cent of the total sick days were caused by injuries, and 60 per cent of these were minor wounds. Sixteen per cent of the sick days were caused by venereal disease. Four cases of mumps, the result of infection from the *New York*, developed, but proper precaution was taken and the disease did not spread.

REPORT ON THE U. S. S. WYOMING.

By A. W. DUNBAR, *Surgeon, U. S. Navy.*

This ship, a single-turreted coast-defense monitor of 3,214 tons displacement, built at the Union Iron Works, was commissioned at the navy-yard, Mare Island, Cal., December 8, 1902. The *Wyoming* has four decks, the berth, main, superstructure, and bridge decks, of which, parts of the first three are available for living spaces. The berth deck is below the water line. On this deck, forward, are located the chief petty officers' berthing space, the sick bay, dispensary, a large berthing compartment, the engineer's machine shop, chain locker, and base of the turret. On each side of the turret a narrow passage leads aft to the dynamo room, which occupies the entire beam of the ship, but is narrow fore and aft. Abaft the dynamo room, amidships, is the firemen's wash room.

On each side a wing passage extends aft from the dynamo room to the wardroom country, the one on the port side extending also to the steering engine room in the stern of the ship.

Between the wing passages are located the fireroom and engine-room space and the coal bunkers.

Abaft the engine-room space and between it and the steering engine room, are the captain's lower cabin, bathroom, storeroom, and seven rooms for wardroom officers.

Exit from this deck is provided by six hatches, four of which, opening upon the main deck forward of the superstructure, are necessarily kept shut at sea. Of the remaining two, one passes up from the dynamo room to the forward part of the superstructure and the other passes from the officers' quarters to the after part of the superstructure. Both are usually kept open. To provide natural light and ventilation for this deck numerous ports pierce the main deck, to which, in port, ventilators are shipped. A large light well passes from the wardroom country to the superstructure deck.

In that part of the main deck inclosed by the superstructure are located the water-closets and shower baths for the crew, wardroom, and warrant officers, ice machine, commissary store, engineer's log room, offices, rooms for warrant officers, pantries, captain's day cabin, and mess room for the officers.

On the superstructure deck are located the principal part of the secondary battery, the galleys and drying room. This deck makes an admirable berthing deck, being provided with side curtains for use in the rainy season, the weather rarely being cold enough to drive the men below.

Ventilation.—This ship is provided with an exceptionally efficient system of artificial ventilation by means of eleven electrically driven blowers.

Located in the dynamo room are two 42-inch blowers which supply the forward part of the ship.

In each shaft alley is a blower furnishing air to the corresponding side of the berth deck and storerooms abaft the after engine-room bulkhead. The engine room is provided with two independent blowers.

To provide for the circulation of air below the main deck when everything is closed down, two fans are located in the firemen's wash room, which exhaust from the wash room, the dynamo room, and thus, indirectly, from the forward part of the berth deck. This exhaust is a great factor in keeping down the temperature in other parts of the ship by exhausting the heated air from the dynamo room.

An exhaust blower is located in the steering engine room giving an exhaust for the after part of the berth deck.

That portion of the main deck situated within the superstructure is provided with two exhaust fans, the port fan exhausting from the water-closets and lavatories and the starboard fan from the remaining rooms and spaces on this deck.

Soon after the ship was placed in commission it was recommended to change the starboard fan to supply instead of exhaust, and further experience with this ship in the Tropics has convinced me of the desirability of the change.

At sea a large number of men congregate on this deck, the larger part of which is located over the fire and engine rooms, and is uncomfortably hot to the touch.

On the trip south the temperature of the rooms on this deck was between 95° and 100° most of the time.

To ventilate these rooms by drawing through them hot vitiated air gives small relief, if any.

By supplying air, each room and part of this deck would receive its quota of fresh air. The heated air would naturally rise and pass out of the three hatches between the double casing of the smokestack, and be drawn out by the exhaust fans connected with the heads.

When the hatches have been closed down at sea the ventilation has been excellent, the forward berth deck being the coolest and best ventilated.

The wing passages are ventilated by currents of air passing from the dynamo room aft on the port side and in the reverse direction on the starboard side, but they are unsuitable for berthing spaces in the Tropics by reason of the high temperature.

When first commissioned the louvres were fixed and in most cases so directed as to unavoidably blow on bunks, hammocks, and mess tables, which, in the chilly rainy season of California, was found to be detrimental to health. This has been remedied by substituting universal joints, which permits of changing the direction of the air current to suit the season and individual.

The intake of the after blowers has been raised above the rail on the superstructure deck, which gives fresher and cleaner air than when located near the deck.

The exhaust from the water-closets on the superstructure deck opens within 10 feet of the crew's galley. When this deck is inclosed by the side curtains the odor is quite evident, and is at times carried down the forwardport blower to the berth deck. This exhaust should open above the bridge deck as does the starboard exhaust.

Water.—Distilled water only has been used aboard this ship for drinking. The distillers are two in number, of a capacity of 5,000 gallons. The quality of the water has, as a rule, been very good, showing but a trace of chlorine.

Refrigerating plant.—Just prior to coming South, an Allen dense-air ice machine of a 1-ton capacity was installed to cool the scuttle butt water. It also furnishes a small amount of ice, which adds much to the comfort of all hands, being especially useful in fever cases.

Bathing facilities.—The cabin and the sick bay are furnished with porcelain bath tubs and supplied with fresh and salt water.

The wardroom and warrant officers and the crew are provided with salt water showers, located on the main deck. The salt water supplied comes from the condensers, and in the Tropics the water is unbearably hot.

The fireroom force has a wash room fitted with bowls and supplied with fresh water.

Water-closets.—The crew's water-closet is ample in size, is tiled and well drained.

Temperatures.—From a series of observations, extending over six months, taken at various times of the day and night, at sea and in port, the following average temperatures have been compiled:

Temperature external air	77.0	Warrant officers mess room	92.0
Fireroom	110.5	Engine room	105.0
Dynamo room	83.0	Starboard wing passage	82.0
Superstructure	89.0	Port wing passage	86.0
Engineer's log room	93.0	Wardroom country, berth deck	82.0
Wardroom mess room	88.0	Forward compartment and sick bay	77.0

The highest temperature observed in the engine room was 126° F.; in the fireroom, 130° F.

Higher temperatures were noted in dead spaces, but the above represents the temperature of the air where most of the men were stationed, assisted draft being used in the fireroom and a wind sail in the engine room.

Accomodations for the sick.—Considering the size of the ship the sick are well provided for.

The sick bay, dispensary, and toilet are located on the port side of the forward compartment of the berth deck. Four folding bunks are provided, which are sufficient for ordinary requirements. The bathroom is completely fitted out.

The water-closet has frequently overflowed owing to the failure of the check valve—a fault common to this type of water-closet.

During the year there have been 194 admissions and 17 re-admissions to the sick list, of which 33 were for injuries.

The total sick days were 1,084, a daily average of 2.961, the percentage of sick being 1.696.

Twenty-three cases of venereal disease were admitted causing 212 sick days. Forty-three cases were transferred to the Mare Island Hospital; one was invalided from the service; and one death (drowning) occurred.

The large number transferred to hospital was due chiefly to an epidemic of influenza, the proximity of the hospital making it advisable to transfer this class of cases which were found to do poorly aboard ship, a tendency to broncho-pneumonia being marked.

Four cases were transferred to hospital with morbilli. An epidemic was prevented by a physical examination of the crew at quarters twice daily and the immediate transfer of any suspicious case, the daily airing of bedding and such imperfect disinfection as could be carried out with the ship in dry dock and the crew aboard.

A considerable number of transfers to hospital is caused by deficient physique and defects in recently enlisted landsmen, who should never have been drafted for duty on a cruising ship, being worse than useless aboard ship by occupying the place of physically qualified men, and often requiring transportation home from distant stations, as in the case of two men now aboard ship, one having exophthalmic goitre in an advanced stage, the other having chronic conjunctivitis, myopia, and defective teeth.

Summary of cruise.—Thirty-three days of the year have been spent at sea. Up to October 22 the time was spent mostly at the Mare Island yard, with short cruises down the California coast. At the above date the *Wyoming* was ordered south, and has since remained in the vicinity of Panama. On the cruise south the change in climate was naturally much felt by the engineer's force, but there were no serious results, but one case of prostration occurring in the engine room, where the greater humidity makes the temperature less easily borne than in the fire room. Acapulco was reached October 31, and a stop was made until November 5. It is claimed that there has been no yellow fever in Acapulco for six years.

Daylight liberty was given by this ship and no serious sickness has resulted in consequence.

We arrived at Panama November 13, anchoring within 1,000 yards of Flamenco Island. No liberty has been granted in Panama, although there appears to be no serious infective disease prevalent.

Five cases of malaria have developed to date, three of which are traceable to infection ashore at Acapulco and Panama, one to duty with landing force up the Tuira River, and one was undoubtedly infected aboard ship. An occasional *anopheles* has been seen on board.

REPORT ON THE U. S. S. ARKANSAS.

By Theodore W. Richards, *Surgeon, U. S. Navy.*

During the year 1903 the health of the personnel of this vessel was excellent; no deaths occurred among the complement, and the percentage of sick from all causes was but 1.22. Considering that upon two occasions cases of contagious disease were introduced on board, that the ship has been subjected to climatic extremes of heat and cold, and that during four months of the year she was almost daily under way, it is believed that the figures quoted above afford a gratifying commentary upon the habitability of the modern monitor under fairly favorable conditions.

For the first two months of the year the ship was stationed at Annapolis, Md., whence she sailed March 9, via Hampton Roads and Key West, upon an extended cruise on inland waters, during which she ascended the Mississippi River to St. Louis, Mo., and the Ohio River to Evansville, Ind. By the end of June the ship had returned to Hampton Roads, and for the past five months has been undergoing extensive repairs and alterations upon her turret at the Norfolk Navy Yard.

Ill effect upon the health of the crew during the cruise up the rivers was hardly apparent at the time, but cases of malarial fever began to develop before the ship reached the Gulf. In June there were 6 admissions for this cause, and during the subsequent quarter 8 more. The trip to St. Louis and Evansville was made at the time of high water, when the low-lying country was inundated for miles beyond the river banks, unless confined by levees, and this was doubtless the most healthful period of the year. Along the lower river (i. e., that portion of the Mississippi below the mouth of the Ohio) malarial and enteric diseases are exceedingly prevalent among the people dwelling in the low, alluvial land beyond the levees. It was not unusual to meet whole communities showing unmistakable evidences of the almost universal spread of such complaints. In the summer, when the river recedes within its banks, these disorders are especially common, many persons being then employed in tilling the vast deposits of fertile silt uncovered and exposed by the falling waters. Consequently, it seemed probable that the return trip of the *Arkansas*, if made at comparatively low water, would result in a largely increased sick report. Moreover, the river had so far fallen by May 5, the date of our departure from St. Louis, that there appeared to be a strong possibility of indefinite detention en route, if, indeed, she were not delayed till the following spring. Fortunately such was not the case, although we were at first unable to proceed beyond St. Genevieve, Mo., some 60 miles below St. Louis. Two weeks later there was a sudden and most unusual rise in the upper river, and the further progress of the ship was not materially impeded.

Throughout the entire trip the ship commonly got under way at daylight, unless stopping at some town, where she was invariably an object of the greatest interest to a multitude of visitors. In all, 30 such stops were made, and it is difficult to estimate the total number of people who came on board.

Frequently the ship anchored at night close to the low-lying river bank, and after the weather became sufficiently warm this resulted almost invariably in an intolerable plague of mosquitoes on board. Some of the men suffered so severely as to require medical treatment, and should a similar trip be made in the future by a naval vessel it would seem advisable to issue mosquito netting to the crew.

On May 18 a case of rubella developed on board, and three days later the patient was transferred to the United States marine hospital, Cairo, Ill. This case was isolated from the first upon the upper deck, and after transfer every precaution was taken to prevent further contagion. Two weeks later, however, another case developed in the person of one of the crew of the steam launch who had been necessarily somewhat exposed in taking the first patient ashore. This case was immediately removed to the marine hospital, Vicksburg, Miss., and no others occurred. A small closed compartment on board, commonly used as a lamp room, was cleared of its contents and connected with the steam-heating apparatus of the ship. An efficient and convenient disinfecting chamber was thus extemporized with little trouble or delay.

Since the ship has been moved to the dock at the navy-yard, Norfolk, Va., cases of tonsillitis and pharyngitis have been especially prevalent, particularly during the last quarter of the year. In many instances a membranous or pseudo-membranous deposit has developed on the tonsils or pharynx, or on both, and their diagnosis from true diphtheria has at times only been possible by bacteriological examination. In one instance only was the Klebs-Loeffler bacillus found, and in this case the symptoms were so characteristic that the patient had already been transferred to the hospital with a clinical diagnosis, which cultures subsequently confirmed. Upon this occasion the sick bay and berth deck forward, together with the crew's bedding and effects, were repeatedly fumigated with formaldehyde, while the sick-bay bedding and attendants' clothing were disinfected in the steam chamber referred to above. The ship was quarantined for five days, and no other cases have since occurred.

There have been no structural changes in the ship which materially affect sanitary conditions on board. This is to be regretted, as certain minor defects become increasingly evident with further experience on board. Of these, the most important consists in the lack of an exhaust ventilating duct leading from the sick bay and adjacent bathroom. As this matter has been previously commented upon, I will only add that the case of diphtheria occurred during cold, inclement weather, and the sick bay was the only place available for the patient's detention pending transfer to the hospital. Under the present arrangement, isolation on board was impossible, air from the sick bay passing back through the crew's quarters before reaching an outlet on deck. With an exhaust duct installed, the sick bay might be effectively cut off from all other compartments. I therefore earnestly renew my recommendation that this alteration be made.

While crossing the Gulf of Mexico, and at Key West, Fla., during the month of June, the weather was oppressively hot, but the ship herself was not especially uncomfortable, the temperature of the compartments below, particularly the engine and fire rooms, comparing favorably with that in similar situations on our battle ships. The ventilating system, as a whole, has been at all times efficient, and with the exceptions above noted has sufficed for all reasonable demands.

No ice machine has as yet been installed, but it is hoped that this may be done at an early date.

REPORT ON THE U. S. S. BANCROFT.

By J. C. Pryor, *Surgeon, U. S. Navy.*

During the year ending December 31, 1903, the health of the crew of the *Bancroft* has been good, considering that her duty has been in the Tropics for almost the entire year.

The ship has visited Jamaica, Porto Rico, Culebra, Trinidad, Venezuela, St. Thomas, Republic of Panama, Bermuda, and the navy-yards at Boston and Pensacola.

Certain ports visited, e. g., San Juan, P. R., have been found to contain much venereal disease. Of the total number of sick days for the entire year, about one-half have been due to venereal disease.

An Allen dense-air ice machine having a cooling capacity of 1 ton of ice per day was installed in April. This machine cools a newly installed cold-storage room and the scuttle butt, adding greatly to the comfort of the crew.

Distilled water only is used for drinking purposes and the ship has been free from water-borne disease.

Attention is called to a source of infection in ships which take water aboard for use in trimming tanks as ballast, or to be stored as feed water. This water frequently contains eggs, larvæ, or pupæ which develop in course of from one to three weeks into possible morbiferous imagoes. These insects are not dangerous until they feed upon a diseased person, but are a constant source of discomfort and a menace. One case of infection of this ship with mosquitoes was almost unquestionably traced to this cause. Chemical examination of the small specimen of water usually furnished for analysis will fail to disclose this animal life, consequently the source of the water should be inspected if possible.

Except for a few electric fans in the cabin and wardroom, there is no artificial ventilation on this vessel. In port in good weather this ventilation is sufficient, but at sea when all of the air ports must be constantly closed, the air gets very foul on the berth deck.

The steam-heating system has proved efficient and more than equal to the very small demand made upon it during the year. The improvised shower bath in the crew's head is the sole method of bathing for the deck force. The engineer's division has a good wash room, except as to its wooden deck, which is constantly wet and sodden. Sheet lead or cement, preferably the former, is suggested as a suitable cover for this deck.

There is no sick bay on board and the dispensary now in use has a coal chute passing through it. When coal is received through this chute from a lighter on the starboard side the cover of the chute must be left open in order to give air to those trimming the coal. If the coal be taken from ashore, or from a lighter on the port side, it must be carried "over all" in baskets and dumped into the dispensary, as this is the only point of access to the subjacent bunkers except as above mentioned. When it becomes necessary to use the coal in these bunkers at sea the cover of the chute must be left off to give an air supply to those working in the bunkers. Consequently, whenever the ship is coaled, the bottles, dressings, furniture, surgical appliances, stationery, etc., are covered with coal dust and more or less damaged.

It is urgently recommended that this defective arrangement be remedied at the earliest opportunity, for, aside from the damage done to property and stores of the medical department, it is impossible to hold sick call at the dispensary while the ship is being coaled, much less to render proper and frequently needed surgical aid to those injured while coaling ship.

The water-closets of the crew and wardroom are obsolete and defective.

Twice during the year, when the exigencies of military service have seemed to compel a disregard of preventive medicine, the ship has been invaded by mosquitoes, and with them came dengue and remittent fever. Seventeen cases of the latter can be traced to a prolonged stay alongside the dock at San Juan, P. R., there being much malarial disease at the naval station at that time.

Measures taken against the mosquitoes and hauling out from the dock resulted in stamping out the disease.

The *stegomyia fasciata* has been caught aboard this ship at San Juan, P. R., and Colon, Panama. It is respectfully suggested that mosquito netting of an improved pattern be issued to the medical department of each ship as a measure of protection to the ship's company and of comfort to the sick.

REPORT ON THE U. S. S. MONONGAHELA.

By CARY D. LANGHORNE, *Passed Assistant Surgeon, U. S. Navy.*

During the year 1903 the ship has been engaged in the training service, and spent ninety-six days at sea and two hundred and sixty-nine days in port. The large number of days in port is due to the outbreak of diphtheria that occurred during the summer while in Newport, R. I.

While at Newport, between June 3 and June 11, inclusive, 240 third-class apprentices were received from the naval training station. Diphtheria was occurring among the apprentices at the training station at the time we received our draft.

On June 24 a case of diphtheria occurred on board ship and I think it is fair to assume that a number of apprentices were infected at the time they were received, as there had been no cases of diphtheria up to this time. In all, there were 8 cases during a period of over two months. All the cases have occurred among the apprentices, the men, numbering 127, having remained unaffected.

The cases were isolated as they appeared and transferred as soon as possible to hospitals. Four cases occurred while at sea, two on the trip from Newport, R. I., to Hampton Roads, Va., and two on the trip from Hampton Roads to Newport. The last case occurred on August 26.

On September 1 a board of medical officers investigated the occurrence of diphtheria on board the *Monongahela.* It was decided to take cultures from the throats of the apprentices and disinfect their belongings before discharging them to other ships, or sending them on leave. This was done and in no case was the Klebs-Loeffler bacillus found.

The board was of the opinion that the ship was not infected, but recommended that the berthing space be washed down with 1-1,000 bichloride solution. After the transfer of the apprentices this was done.

The sanitary condition of the ship is good. The ship is clean and the health of the crew and apprentices has been excellent, with the exception noted.

REPORT ON THE U. S. S. ALERT.

By **Frank E. McCullough**, *Passed Assistant Surgeon, U. S. Navy.*

At the beginning of the year the U. S. S. *Alert* was engaged as a tender to the naval training station, San Francisco, Cal., changing apprentices bi-weekly. The winter climate of San Francisco Bay proved too rigorous for this work, much time being lost on account of cold weather, dense fogs, and frequent rains. On March 18 the ship proceeded to San Diego, Cal., and until June 30 cruised in the vicinity of this port, the northern limit being Santa Barbara and the southern Ensenada, Mexico, situated about 60 miles south of San Diego.

This is an excellent cruising ground for apprentices. Almost every hour of the time can be utilized, the climate being ideal. The rapid physical development of the apprentices after a few months in these waters and the marked improvement in their health proved the wisdom of the change from San Francisco Bay. After being aboard for one hundred and one days, the average gain in weight was 5.34 pounds and in chest expansion 1.2 inches.

The second consignment of apprentices was received August 4, and on August 10 the vessel again proceeded to San Diego and vicinity.

German measles appeared among the apprentices just before reaching San Diego. The infected ones were immediately isolated and sent to the quarantine station at San Diego, where tents were erected for the 9 cases which appeared. The facilities for handling a ship's company are excellent at this station. The entire complement of a first-class battle ship could, in emergency, be accommodated there.

The general condition of the apprentices on arrival was unsatisfactory. All had enlarged cervical and postcervical lymph nodes; many were anæmic and were the subject of skin diseases. In little more than a month these conditions had about disappeared, After being aboard one hundred and two days, the average gain in weight was 6.2 pounds and in chest expansion 1.4 inches.

The sanitary condition of the vessel for the past year has been satisfactory, except as to the wardroom living rooms, pantry, and storeroom. These are located largely below the water line; their ventilation and illumination are poor, and in consequence they are damp and unhealthful. Fabrics and cereals mildew and tin containers erode until their fluid contents are lost. The odor from the pantry, located just abaft the staterooms, in spite of great care, is unsavory. All the remaining parts of the ship are dry, sanitary, and well ventilated. Ample room could be found for the wardroom and accessories on the gun deck.

The vessel is not provided with an electric plant. The installation of one for proper instruction and ventilation seems imperative.

The sick quarters are ample and comfortably situated. The odor from the ship's head has been materially improved by the following device: A tin (capacity 1,000 c. c.) has been so constructed as to partly surround the flushing pipe, which at times discharges hot water. This tin is filled with equal parts of crude carbolic acid and oil of tar, which is slowly volatilized when the hot water is discharged. A very small hole is made in the bottom, so that about 50 c. c. per diem will flow down the flushing pipe into the drain. A pronounced odor of tar supersedes the usual odor of urine.

REPORT ON THE U. S. S. MARBLEHEAD.

By W. L. Bell, *Passed Assistant Surgeon, U. S. Navy.*

During the year this ship has visited the following places: Mare Island, Cal.; San Francisco, Cal.; Acapulco, Mexico; Amapala, Honduras; San José de Guatamala; Pichalinque Bay, Mexico; Magdalena Bay, Mexico; San Diego, Cal.; San Pedro, Cal.; Bremerton, Wash.; Dutch Harbor, Alaska; Unalaska; Kiski Island, Alaska; Astoria, Oreg.; Portland, Oreg., and Panama.

At all the above-mentioned places the health of the crew has been excellent, except at Unalaska and Panama. A virulent case of diphtheria was contracted at Unalaska by a straggler who rejoined the ship there. The case developed on the way back to Bremerton, and proved fatal shortly after transfer to the United States naval hospital, Puget Sound. The ship was thoroughly fumigated with formalin and sulphur, but again on August 17, while en route to Astoria, Oreg., another case appeared. Upon arrival at Astoria the case was sent ashore at the request of the health officials, and the ship remained one day in the mouth of the river where she was again fumigated with formalin and sulphur, all clothing aired, all bedding and washables washed, sick bay and neighboring compartments washed down with carbolic solution, and the whole ship newly painted. No other cases appeared.

The ventilating system is one of supply, and is not efficient, particularly in the Tropics. The ventilation at night is not all that could be desired. The sick bay is supplied by a blower situated in the head, forward on the port side. When it becomes necessary to shut this down, the sick bay has no means of obtaining fresh air, and the air becomes anything but healthful.

The sick bay is entirely inadequate for a ship carrying a complement of from 265 to 270 officers and men. It is located on the berth deck, forward, on the port side of the second compartment, and has no beds, except a stationary couch along the outer side, or any room for them. The dispensary is aft, and in dimensions is 9 by 4½ feet. The bathroom is forward, and between it and the dispensary is an irregular quadrilateral space 12 feet long by 9 feet wide at one end and 5 feet 6 inches at the other. This is the sick bay. In this space is a desk, the only available place for one, and a door leads to the bathroom from the forward end. If a folding bunk were on the inboard bulkhead, no access could be had to the bathroom, and there would be just enough room to squeeze between the transom and the bunk. As a result the patients have, practically, no accommodations, and must necessarily sleep about the ship. In addition the drain pipe from the closets above runs through the sick bay, opening just outside. When the ports are open a very disagreeable odor from this drain is often apparent. A chain locker is located just under the sick bay and a paint locker under the bathroom, and this adds much to the discomfort, owing to the passing to and fro.

It seems evident that this ship should have a sick bay located somewhere farther aft, where the motion would not be so pronounced, where sufficient room could be had for four folding bunks, and where the other objectionable features now existing could be obviated.

It has been found that most of the men who had slight attacks of fever at Panama were those who participated in swimming near the beach at Perico Island. They were not allowed liberty in Panama. It is stated that the current at this place runs from Panama toward La Boca, and from there outward, dividing on Perico and other small islands. This water comes from the canal and the marshes and swamps immediately surrounding it. Many of the men were bitten by gnats, but no mosquito bites were noted.

REPORT ON THE U. S. TRAINING SHIP ADAMS.

By EDWARD G. PARKER, *Passed Assistant Surgeon, U. S. Navy.*

During the past year the *Adams* has been engaged in the training service and has cruised for the most part in the waters of southern California. Magdalena Bay, Mexico, has been visited twice. Two cruises and two months of a third cruise have been made with different drafts of recruits. The first cruise was made with apprentices, the second with landsmen, and at present we are carrying both.

The climate in southern Californian waters is especially suitable for the training of recruits. It is most healthful and I believe that during the past year not one day has occurred on which the weather has been such as would interfere with the carrying on of all routine and drills. Indeed were this ship to cruise in a climate where it would be likely to meet bad weather, with the necessary battening down of hatches, etc., many of the sanitary arrangements, which are tolerable only in a mild climate where free ventilation is obtainable, would become a serious menace to the health of all on board.

Each time the ship has left the rather trying climate of San Francisco for southern California, the improvement in the general health of all has been marked. I speak more especially of the bronchial affections which about San Francisco have been troublesome and have always disappeared after a few days south of Point Conception.

Early in April a draft of landsmen was received on board from the United States naval training station, San Francisco, Cal., while the ship was lying at the Mare Island Navy-Yard.

Measles, mumps, and diphtheria broke out immediately—one case of each. All were transferred to the hospital at once.

A second case of measles appeared sixteen days after the first in a patient who had not been ashore, and whose duties (as captain's writer) kept him apart from the crew. It is not easy to trace the source of his infection, except by fomites, as he was not brought in contact with the original case. However, the patient was an individual especially susceptible to contagious diseases, since he was among the first to develop diphtheria in an epidemic which occurred some months later.

After the patient was gotten out the ship was depopulated and thoroughly fumigated by the quarantine authorities at San Diego, Cal. No further cases of measles developed.

A second case of diphtheria developed one week after the first. He was isolated and given antitoxin. An uneventful recovery followed, and this proved to be the last case of diphtheria traceable to infection brought on board by this particular draft of landsmen. The second case of mumps appeared seventeen days after this disease was introduced on board ship. This was followed by others, and the disease remained with us during the four months of the cruise.

All cases were isolated in the steam launch while the ship was at sea, and in such boats in port as were not lowered. Nineteen cases in all occurred, with metastases to the testicles in three, one of which had both testicles involved.

Early in July, while the ship was lying at San Diego, Cal., diphtheria again appeared and was clearly traceable to water front disease at that place. It had been over two months since the last case of diphtheria on board ship was discharged to duty, and the ship had just come in from a two week's trip at sea. Four cases appeared in four days.

The ship went to the quarantine station and again by the kindness of the quarantine authorities another epidemic was checked. All patients and suspects were transferred on shore and quartered in tents supplied by the quarantine authorities at their station. The ship was depopulated and thoroughly disinfected with formaldehyde gas, and the personal effects of all on board were disinfected by steam and formalin.

Morning and evening inspection of throats was held, and after four days of the strictest quarantine the men were allowed on board ship. No further cases developed.

Antitoxin was freely used in all cases with good results. One death occurred from secondary cardiac complication during convalescence. This patient was given 7,500 units before the local process in the throat had cleared up. The other three cases had uneventful recoveries, and negative cultures were first obtained from their throats after eighteen, thirty-two, and thirty-three days, respectively. Cultures from all throats were taken and four only showed true diphtheria. From those cases which clinically showed undoubted diphtheria positive cultures were obtained. The doubtful cases showed staphylococcus and streptococcus. Inoculated tubes may easily be incubated on board ship. A suitable place in the engine room can always be found where the temperature is constant at 99° to 100° F. The tube can then be inclosed in a wooden box, such as clinical thermometers are packed in, and suspended in such place for twelve hours or more, as is necessary. This answers perfectly well for diagnostic purposes.

In spite of the contagious diseases we have had to deal with, the general health of the crew has been fairly good, and among the recruits decided improvement in physical condition is shown.

Careful measurements of each recruit were taken when the drafts came on board and again at the end of each cruise. The following figures will show the gain in the several measurements:

Height	inches..	0.49
Weight	pounds..	6.8
Mean chest	inches..	.94
Expansion	do....	.28
Forearm	do....	.64
Arm	do....	.8
Thigh	do....	.96
Calf	do....	.5

Data from 71 landsmen for training.

Height	inches..	0.57
Weight	pounds..	4.9
Mean chest	inches..	.99
Expansion	do....	.83
Forearm	do....	.52
Arm	do....	.41
Thigh	do....	.45
Calf	do....	.26

The above increase in measurements took place during a period of about six months in the case of the apprentices, and of about four months in the case of the landsmen for training.

It may also be stated that in no individual case was there any decrease in these measurements.

The general-mess system used on board this ship has been most satisfactory. One-fourth of the rations are commuted and turned into the general-mess fund. The crew is very well fed and there has been no complaint as to the quality of the food.

There have been no essential changes in the sanitary arrangements of this vessel during the past year.

The flushing pumps have been overhauled and are now more efficient than formerly, although the whole flushing system is entirely inadequate, as indicated in the sanitary report of last year.

The arrangements for lighting on board this ship are very unsatisfactory, old-fashioned oil lamps and candles being used.

The sick bay is feebly lighted in the daytime by four small ports, and at best is dark and gloomy.

I would strongly recommend that a suitable dynamo be allowed, as it is necessary for the greater safety of the ship as well as the comfort of everyone.

There have been occasionally well-founded complaints about the drinking water, it being warm and not well aerated as it comes from the scuttle butt. The hold where the supply tanks are kept is warm and has no free circulation of air, hence the water, hot from the distillers coming into these tanks does not become cool and well aerated, even after three days standing. The tank capacity of 3,000 gallons and the daily consumption of 900 gallons, does not admit of the water standing longer than the three days mentioned. If the tank containing the supply for the scuttle butt were placed on deck where the water might stand and become cool and aerated, it would improve the quality of the drinking water.

The general condition of the ship, as regards cleanliness, has always been excellent, the hold, storerooms, etc., being kept clean and sweet.

Regular instruction in first aid to the wounded has been given the recruits, by lectures and practical demonstrations in the following subjects: The first principles of surgical cleanliness, the location of the important vessels and the application of tourniquets, the application of first-aid dressings and splints, the carrying of the wounded, and treatment for resuscitation of the apparently drowned. Each one was required to do alone all the practical part of these subjects.

REPORT ON THE U. S. S. WHEELING.

By H. E. Odell, *Passed Assistant Surgeon, U. S. Navy.*

The ventilating system of the ship is the common type of steam blower in use in the Navy, two fans, one forward and one aft, driving the fresh air into the various compartments. A wind sail is rigged, leading through the wardroom skylight, giving an additional supply of air to the after part of the ship.

Electric fans have been supplied in larger numbers than usual to a ship of this size. They help very materially to make the places where they are installed comfortable. but the ship should be furnished in even a more liberal manner, as the berth and gun decks need them very badly. Some six or eight of large size would answer the purpose.

While at Tutuila, Samoa, the ship lies at the coal pier and a fresh water supply is piped from the naval station. This supply is excellent, but for drinking purposes all water is distilled.

The sick bay and dispensary are all that could be asked in a ship of this size. In the way of accommodations for the sick, there are two folding bunks attached to the inboard bulkhead and a transom that can be utilized if necessary. The water-closet and bath tub are in the forward end, separated from the sick bay proper by a bulkhead.

An excellent shower bath and dressing room have been constructed on the dock for the benefit of the crew. This is a splendid institution, as frequent bathing is one of the essentials in the tropics, and the use of buckets is as objectional as it is unsatisfactory. The water is obtained from the station supply.

During the year there have been 153 admissions and readmissions, not considering any but persons foreign born. The number is much greater than it should be for a crew of 130. Boils, ulcers, and abscesses have caused, and continue to cause, many to go on the sick list. These diseases, I am satisfied, are due to duty in Samoa, where almost every native is subject to some form of skin disease.

The ship has such a high temperature in the normal berthing spaces that most of the crew try to find relief by sleeping on deck, but here they are subject to frequent disturbance, as rain either drives in on them or else falls from the awnings and then finds its way over pretty much the whole deck. To add to the other discomforts, there has been no ice plant on the station and no cooling plant on the ship, so that fresh provisions and cool drinking water have not been enjoyed except for brief periods after the arrival of the mail steamers. An ice plant is now under construction, however.

Cases of serious illness have been treated in a small building on shore, while cases of ulcer, boils, etc., have been sent to a small quarantine station in the harbor for the benefit of the change.

A building should be constructed on the dock that would give a sufficient amount of berthing space for the crew, amply protected from the rain, and in one end of which a galley could be placed, in a separate room.

In last year's report it was recommended that the ship make occasional trips to Aukland for the beneficial effects of the change of climate. I consider this a very necessary measure.

REPORT ON THE U. S. S. PETREL.

By CHARLES H. DE LANCY, *Passed Assistant Surgeon, U. S. Navy.*

This vessel was placed in commission October 19, 1903. The sick bay, dispensary, and medical storeroom are large and well fitted for a vessel of this size. The sanitary condition of the ship is very good and the health of the crew excellent.

The enlisted men of the Navy should be provided with suitable headgear for use in the Tropics. The Navy is called upon each year to perform more work in the Tropics, and the small uniform hat is insufficient protection for the head and no protection for the back of the neck. The enlisted men of the British, French, and other navies are supplied with a broad-brimmed straw hat, very suitable for wear in the Tropics, especially for the men of landing parties and for men doing boat duty. The privates of the United States Marine Corps have uniform helmets, but the enlisted men of the Navy have nothing but a small white hat.

The uniform helmets for officers of the Navy furnish insufficient protection to the neck. The brim of the helmet in the back should be made longer than it is at present.

It is recommended that there be added to the uniform for the enlisted men of the Navy a broad-brimmed straw hat, with the cap ribbon of the ship to which the owner is attached surrounding the base of the crown, and with a strong chin strap. A straw hat similar to the one in use in the British navy would be very useful indeed.

REPORT ON THE FIRST TORPEDO FLOTILLA.

By F. M. BOGAN, *Passed Assistant Surgeon, U. S. Navy.*

The first torpedo flotilla was commissioned in February, 1903. It consists of the torpedo-boat destroyers, *Chauncey*, *Decatur*, *Bainbridge*, *Barry*, and *Dale*. They were built from the same designs and are practically identical, differing only in a few minor points.

The *Chauncey* will be described as the type. Her length is 245 feet; beam, 23 feet; mean draft, 6½ feet; trial displacement, 420 tons, but with coal and stores aboard, the displacement is nearly 700 tons; indicated horsepower, 8,000; speed, 28 knots; twin screws, with two four-cylinder, triple-expansion, inverted, direct-acting, balanced engines, and four Thorneycroft speedy type boilers. The ship is armed with two torpedo tubes, four Whitehead torpedoes, two 3-inch and five 6-pounder rapid-fire guns.

Drainage.—There is one main drain running the whole length of the ship and it is connected with each water-tight compartment. Connected with this drain are six pumps—two fire and bilge, two auxiliary, and two circulating.

Heating and lighting.—The ship is comfortably heated by steam coils placed in the living quarters and is lighted by electricity furnished by one 5-kilowatt dynamo.

Water.—An abundant supply of fresh water has been furnished by two distillers with a daily capacity of 1,800 gallons. The total capacity of the fresh-water tanks is 3,761 gallons. The drinking-water tanks hold 315 gallons. The water has been excellent in quality.

Living spaces.—Considering the type of ship the officers' quarters are large, well lighted and ventilated. These quarters are entered through the after conning tower. There are four staterooms, separate bath and water-closet, and a pantry, with an excellent ice box. The wardroom has three air ports and a skylight which can usually be kept open at sea. The after conning tower also provides an additional source of fresh air, especially valuable when the skylight is battened down.

The closet in the surgeon's room can not be used because of the continual leakage of water into it from the deck above. As this closet constitutes one-third of the storage room allotted the medical officer, its loss is keenly felt. Moreover, the continual dampness must be detrimental to the health of the occupant.

The total space assigned the crew is 4,690 cubic feet, and from this must be deducted the space occupied by bunks, transoms, ditty boxes, bags, etc. Of this space about 2,000 cubic feet are occupied by the petty officers—23 in number—giving an average of 87 cubic feet per man. The remaining 2,700 cubic feet is entirely within the forecastle. It is occupied by 51 men, allowing an average space of 53 cubic feet per man. This is entirely inadequate. In the forecastle there are three tiers of bunks, the tier next the deck being a sort of transom, while the upper rows are folding—a convenient arrangement where the space is so cramped. The uptake from the forward boiler abuts upon the after bulkhead of the forecastle. A louvre, which leads into the air space around the forward smoke pipe, opens into the forecastle and gives some ventilation on the exhaust system when that smoke pipe is in use. When B boiler is used alone the hot air from the fire room is forced into the forecastle through this louvre.

On the *Decatur* and *Dale* the air ports are furnished with only two dogs, and, as a consequence, the ports leak at sea and the bunks of both officers and men are frequently wet from this cause. On the other three ships there are three dogs to each port, and the ports are tight, except in the head.

Ventilation.—There is no system of artificial ventilation. The officers' quarters, as has been stated above, are well ventilated, and we have been able usually to keep the ventilators open at sea. The air in the forecastle becomes very foul when the ventilators are closed, as is necessary in rough weather. This is due to the faulty position of the head, and it is, in my opinion, the most serious defect of this type of ship.

Water-closets.—The head occupies the bow of the ship, and the air ports leak when at sea in moderately heavy weather, even with the dead lights on. The only means of ventilation at sea are two overhead ventilators, which can not be used in heavy weather, and a door leading into the men's quarters. When this door is opened the foul air, which is tainted with the odor of fecal matter, rushes into the forecastle. In order to appreciate how much of the time this door is open, it is necessary to remember that between 70 and 80 men have to use the head. So far as I can see, there is no reason why the head should not be built on deck, as is the case with the galley.

Galley.—During the spring of 1903 the galley, with all its attendant heat and odors, was removed from below and installed in a house erected on deck, forward of the after conning tower.

Dispensary.—Each ship is furnished with a medicine chest, containing dressings and the usual emergency medicines. The medical officer, hospital steward, and apprentice are stationed aboard the *Chauncey* and, when in port, the sick from the other ships of the flotilla attend sick call on this vessel. The forward conning tower is used as a dispensary. It contains two lockers, which are filled with the medicines and dressings that are constantly in use, while additional articles are kept in the after storeroom. This conning tower is perhaps the best place aboard the ship for the dispensary, but it is at best a makeshift, as the noise, water, and heat from the steering gear make it almost unbearable at sea, and it is so small that ordinary dressings can not be put on in it. The dispensary on one of the boats of the second torpedo flotilla answers the requirements.

A few days after I reported aboard the *Chauncey* the extremely generous outfit requisitioned by my predecessor arrived. But, unfortunately, no provision had been made for the stowage of this large outfit. In fact it was altogether too large for the ship and I found it necessary to leave some of the bulky articles in Norfolk. Unless a proper dispensary is provided it would, in my opinion, be best to supply torpedo boats and destroyers with medicines in tablet form only.

REPORT ON THE U. S. FISHERIES STEAMER ALBATROSS.

By CHARLES S. BUTLER, *Assistant Surgeon, U. S. Navy.*

Between March 18 and June 5 of this year the ship was thoroughly overhauled and many long-needed repairs made. The electrical system was renovated throughout, new decks were laid where required, and the old ones recalked. Engines and boilers were overhauled thoroughly, new water-closets were installed throughout the ship, and the fittings and hangings in the cabin and ward rooms renewed. In order to make conditions better for the steerage, which was very poorly ventilated, two good-sized ventilators were installed to replace the small one previously used. In addition, the hull received attention wherever required, the ship was scaled or the paint burnt off, and she was repainted inside and out. The only further improvements suggested are: Artificial ventilation all through, and better bathing facilities for the crew.

During the three months of the year that the ship was actually cruising she was engaged in operations throughout the salmon regions of Alaska to ascertain the advisability of establishing hatcheries for these fish, the suitable places for such hatcheries, and also the advisability of modifying the laws relating to the taking and canning of salmon. In addition to this, a good deal of work for purely scientific purposes was done.

It was found that the temperature of the engine room varied between 95° and 100° F., and that it was suitable for the cultivation of organisms. The motion of the ship and the jarring of the machinery have little effect upon their growth, so that cultures of the more common organisms have been kept on hand. The typhoids of proper age always have good motility, and a Widal can be done with as much facility as in a well-appointed laboratory. Cultures from suspicious throats and from abscesses have always been made, and the results studied. Loffler's blood serum, nutrient agar, and bouillon were the culture media found of greatest use. The ordinary sterilizer issued to ships can be used for the sterilization of media.

A case of variola occurred in a landsman who shipped at Seattle on June 18. The disease made its appearance on the 22d, while the ship was taking on coal at Union Bay, British Columbia. The eruption made its appearance on June 26, when the ship was dredging off Fort Rupert, British Columbia, and the ship returned to Port Townsend quarantine station for disinfection. The infected portion of the ship was fumigated at the Diamond Point disinfecting station, and she started again for the north on July 2.

While it has no bearing on the sanitary condition of the ship, yet I wish to record an observation that was made at a number of the salmon canneries of Alaska, which is the presence of a disease among the coolie laborers around these canneries similar to or identical with beriberi. The conditions under which these Chinese live is most insanitary. They are usually crowded in quarters reaking of dead salmon, opium, and tobacco smoke. Under these conditions it is common to find at one or more of these canneries in the course of a summer a disease showing some of the following symptoms: Œdema of the legs, trunk, or both; œdema of the legs in the beginning, followed later by atrophy; atrophy from the start with ataxic gait, or inability to stand or walk unsupported; foot drop or wrist drop, or both; various murmurs at the several orifices of the heart, dilatation of the heart, throbbing of the arteries of the neck, pain in the region of the heart, dyspnœa and oftentimes sudden change for the worse and death. It is evidently a neuritis, and the fact that it often develops in a number of people living together and under similar hygienic conditions would indicate that the cause is a common one to all. A "Celestial" graveyard is an adjunct of all of these canneries, and one of the chief augmenting factors is the disease briefly described above.

REPORT ON THE U. S. S. NASHVILLE.

By H. O. Shiffert, *Assistant Surgeon, U. S. Navy.*

On January 16 this ship arrived at the Boston Navy Yard for extensive repairs to her boilers and decks.

Having spent the preceding months in the West Indies and the previous winter on the Mediterranean, the zero weather of Boston was keenly felt by all on board. No sickness resulted, however, from the sudden change of climate until in the latter part of February, when parts of the spar deck were taken up and the gun ports removed for repairs. The exposure to a wet deck, with a deficient amount of heat—the auxiliary boilers only being in use at the time—was the immediate cause of numerous pulmonary affections among the crew, some of whom had to be transferred to the hospital for treatment.

Temporary repairs were made to the plumbing throughout the ship, but the officers' water-closet and the sick bay water-closet again need attention. A new bowl should be placed in the latter.

The waste-water tanks, which occasionally had emitted a foul odor, were removed or cut off wherever it was practicable to pump the waste water directly overboard. While the present arrangement may not be quite so convenient as the former one, it is far more satisfactory from a sanitary standpoint.

The forward fresh-water tank on the starboard side, which was condemned in a previous sanitary report because the sick bay water-closet discharge pipe led through it, is no longer in use. This tank, being against the ship's side, had been utilized for cooling drinking water, and when abandoned it became necessary to provide other means to accomplish this purpose.

A vertical Allen dense air ice machine was consequently installed on the port side of the gun deck. After a trial of seven months in the Tropics this machine has proved satisfactory in every way. A fair supply of ice is furnished for the cabin and wardroom twice daily, and pipes are so arranged that cooled air circulates through coils in the scuttle butt, cooling a liberal supply of drinking water for the crew to an average temperature of 59° F. This machine is recommended to make, by easy daily work, 150 pounds of ice, to refrigerate 210 cubic feet of meat rooms to the freezing point, and to cool 150 gallons of drinking water. If a refrigerator sufficiently large to hold 1,500 pounds fresh beef could be added to the above-mentioned plant, it would greatly facilitate the management of the general mess, and would remove several objectionable features which at present are unavoidable.

A bake oven, with a capacity for baking 48 loaves of bread at one time, has been placed in the galley. The latter has been enlarged and repaired and is in excellent condition, with the exception of the floor, which, aside from being already worn through in several places, is not properly drained and permits waste water to accumulate in almost inaccessible places.

The natural ventilation throughout the ship is unusually good, and with the exception of the storerooms and the firemens' wash room on the berth deck, there is little need under ordinary conditions for artificial ventilation. The efficiency of the artificial ventilating system could, however, be greatly enhanced by having wire netting of a coarser mesh in the louvres. The netting in the louvres at the present time is a fine mesh and readily collects particles of dust, which mass together and occlude the openings of the air ducts.

On May 20 the ship sailed from Boston for Key West. Since then most of the time has been spent in Cuban ports and in Colon and vicinity. The cruise has been unusually trying, because it was found impracticable or unadvisable to grant liberty in most of the ports visited. Notwithstanding numerous and continued depressing influences, the sickness on board has not been excessive. The average complement during the year, including officers, was 185, and the percentage of sick 1.84.

In order to encourage and to facilitate personal cleanliness and to obviate the present disgusting bath-bucket system among the deck force, I would recommend that a wash room with two shower baths and several porcelain-lined basins for washing hands and face be installed on the starboard side of the gun deck under the forecastle.

REPORT ON THE U. S. S. DON JUAN DE AUSTRIA.

By William Seaman, *Assistant Surgeon, U. S. Navy.*

This ship cruised in the southern Philippines during the early months of the year, with headquarters at Zamboanga, P. I. She returned to Cavite in April, docked in Japan in May, and went to Chefoo for the summer months, calling en route at two ports in Korea. While at Chefoo, short trips were made to Port Arthur and the Yalu River, respectively. We spent three weeks of September and October in Shanghai, leaving there for southern Formosa, where we touched at two ports; thence we went to Hongkong, docking and returning to Cavite. On December 10, we left Cavite for the United States, via the Suez Canal. The ship has been at sea about sixty days during the year and has covered more than 11,000 miles.

The health of the crew has been good. One death occurred from suicide. A Chinese boy, confined in the brig for refusing to obey orders, hanged himself by means of his elastic belt, and was dead when discovered.

Dengue attacked the ship's company, first in Zamboanga in the spring, then in Hongkong and Cavite in the autumn. The epidemic in Cavite was characterized by hyperpyrexia in nearly all the cases, and in 50 per cent of the cases, after convalescence was established and the patient had been sent to duty, a pronounced jaundice developed, with the usual symptoms accompanying this affection, which cleared up slowly under cholagogues and cathartics.

The most annoying and persistent disorder encountered during the year was an epidemic of infectious conjunctivitis, which appeared on board in August, at Chefoo. As far as could be ascertained, no other ship was infected. We had as many as 12 cases under treatment at one time, most of them mild in character and responding readily to astringent lotions and protection from the light. Others, however, proved most intractable to treatment and lingered for weeks. All recovered without sequalæ save one, in whom a keratitis developed. The last case occurred in Shanghai in October. I was informed by the hospital people in Chefoo that this eye affection is very common among the Chinese there, and of a very mild type, but in the case of foreigners it is nearly always more serious. All of the different collyria recommended were tried at different times, but a two grain to the ounce solution of silver nitrate proved most efficacious.

As usual, more venereal disease was encountered in cities where there is no medical supervision, and especially at Chefoo and Shanghai.

The sanitary condition of the ship has been good. The officers' water-closets were replaced in Japan by a new set, which have proven satisfactory. A large drainpipe from the men's urinal has prevented the frequent stoppage and overflowing which formerly occurred.

The ice machine has proven unsatisfactory. Long out of repair, it was overhauled in Japan and pronounced in good working condition. A small quantity of CO_2 was obtained with difficulty, and for a short period we made ice in Chefoo, but for the most part we were forced to depend upon the "paddy" ice ashore. The end of the year finds our ice machine out of commission again, when we need it most, viz, during our long stretches at sea in the Tropics.

REPORT OF THE U. S. S. HELENA.

By J. W. Backus, *Assistant Surgeon, U. S. Navy.*

The sanitary condition of the ship has been excellent.

During the year this vessel has been in port three hundred and fifteen days and at sea fifty days, and has cruised between 14° and 41° north latitude.

There have been 746 sick days, an average of 2.04 per day. Average complement of ship was 214.4 and average percentage of sick 0.946.

Three cases of typhoid fever occurred, only one coming under my observation, and that could be traced to drinking bottled lemonade on shore in Shanghai, China. This case did not develop until the ship arrived in Newchwang, and there being no hospital there where infectious cases could be properly cared for, the patient was moved aft to the commanding officer's office. All three cases made good recoveries.

Cholera and dengue were epidemic in Shanghai while this ship was there during September and October, but by exercising ordinary precautions no cholera and only 3 mild cases of dengue occurred on board.

The ship has been in mud dock at Newchwang, China, since November 6. The entrance to the dock was closed by a strong dam, and a sluice made on one side so that the water in the dock could be replenished as often as needed. The temperature of the water in the dock has been from 25° to 30° above freezing, although the atmospheric temperature has been between zero and freezing with the exception of two or three days.

The ship is housed over with three layers of mats, and, with stoves on the quarterdeck and forecastle, it is very comfortable for the men on watch and makes routine drills possible, although up to the present time the infantry drills have been on shore.

Part of a building used as a storehouse has been fitted out very completely as a gymnasium for the use of the ship, and all kinds of athletic sports are encouraged.

The latrines are on shore. They are made of mud bricks, covered with clay, and are kept warm with stoves.

Plague has been epidemic here during the year, but has been confined almost entirely to the native city, although a few cases have occurred among the Russian soldiers. The exact number of cases it is impossible to state, since the Chinese conceal the patients while ill and the bodies after death because of their dislike, or distrust, of foreign medical assistance. Russian military medical officers are in charge of the plague. They have a plague hospital about 3 miles from the town, where cases are taken as soon as discovered, but a considerable number of the cases reported by them are cases found dead in Chinese houses. The number of new cases diminished as the weather became colder, but not as rapidly as would be expected in clean surroundings. One thousand and one cases have been reported during the year, of which 954 died or were found dead in Chinese houses; 44 cases recovered; 3 cases were in the hospital at the end of the year; mortality, 95.3 per cent. Of the total number of cases 5 per cent were of the pneumonic type of the disease, the remainder being of the bubonic type.

REPORT ON THE U. S. S. ELCANO.

By George M. Mayers, *Assistant Surgeon, U. S. Navy.*

The *Elcano* was commissioned November 20, 1902, at the Cavite Navy-Yard. A short history of the acquisition of the *Elcano*, with several other small gunboats, is of sufficient interest to insert here. Bought by the War Department from the Spanish Government the *Elcano*, *Basco*, *Urdaneta*, *Guardoqui*, *Albay*, *Manileno*, *Panay*, *Paragua*, *Pampanga*, *Samar*, *Mindoro*, *Mariveles*, and *Calamianes*—in all 13 gunboats—were convoyed into Cavite by the U. S. S. *Petrel* during the spring of 1899. The idea was to man them with soldiers and sailors for work in the Philippines, but finally all were turned over to the navy.

For three years and a half the *Elcano* lay at the Cavite Navy-Yard undergoing repairs. The ship was remodeled on a new plan, when she was finally commissioned and sent for service on the Yangtze Kiang River. The so-called "half-caste" gunboat does not meet the American idea from a hygienic standpoint, but everything possible has been done for the comfort of those on board. Recently there have been added an electric plant, steam-heating apparatus, and an ice plant, the last with a daily capacity of 150 pounds.

Built at Barcelona in 1894, the displacement of the vessel is calculated at 560 tons; with twin screws, compound engines, and Scotch boilers her steaming average is placed at 9½ knots per hour. The hull and framework are steel, without water-tight compartments or double bottoms. A mean draft of 10 feet and a low freeboard make her suitable for river service. Her armament consists of four 4-inch, four 6-pounder rapid-fire rifles, two Colt automatic guns, and one 3-inch field piece, a remarkably heavy armament for such a small vessel.

At present there are 6 officers and 103 men, besides a Government pilot living on board. In a general way it may be said that this battery requires more men than the ship can accommodate comfortably, but it must be added that thus far all persons have been in good health, with no disease prevalent that might be ascribed to overcrowding. It requires diligent care and attention to keep the ship in good sanitary condition. Probably the worst features are lack of sleeping space for the crew and storerooms for provisions and clothing. With the exception of a small dispensary no accommodations have been made for the sick, on account of lack of space.

The crew's quarters are small, the forward berth deck containing only about 8,000 cubic feet of air space, and this occupied by 64 hammock billets. In summer part of the men sleep on the superstructure and main deck. During cold weather the space between these decks is well fitted with canvas side screens and heated from the engine and fireroom hatches—a provision well made and reducing to a considerable extent the problem of sleeping space in bad weather. The ship is well ventilated in every space.

The officers' quarters accommodate 6 officers, besides the cabin space, which contains a bathroom and water-closet, in all about 6,000 cubic feet of space. An additional water-closet for officers is placed amidships on the main deck, with a shower bath adjoining; but the latter has been turned over for the use of the men.

The ship carries 93 tons of coal, and has a stowing capacity for 2,000 gallons of fresh water, all of which is distilled and stowed in closed steel tanks lined with cement. Distilled water is thus always obtainable for drinking, cooking, and bathing purposes, the daily capacity of the evaporator being placed at 1,000 gallons.. The ship is fitted with fire, flushing, fresh-water, and drainage systems.

The 1st of January, 1904, finds us at Shanghai, China, having just returned from a cruise up the Yangtze River. The ship at present is in good sanitary condition. Our cruising limits are between Shanghai and Hankow, visiting Chinkiang, Nanking, Wuhu, and Kiukiang en route. The river rises 40 feet higher in the summer season than in winter, overflowing its banks for miles around, and, although the valley is extremely fertile, the summer months between May and November are unhealthy, the ports along the river being infected with cholera, amœbic dysentery, typhoid fever, and malaria. Flies and mosquitoes are numerous.

Hankow, with a population of a million people, is 594 miles distant from Shanghai, and, in comparison to other Chinese cities in the interior, is splendidly built. This so-called "Chicago of the Far East" enjoys the distinction of being enterprising, with iron and tea mills in operation and railroads building, the work being in the hands of American, English, German, and Belgian people, the total foreign population numbering about 500. There are a few hospitals here under the control of missionaries. The best (Catholic Mission Hospital) furnishes the services of an English physician and educated female nurses. Their equipment is meager, but the institution promises advancement. These advantages are thrown open to the navies at the rate of $6 Mexican per day. This hospital is used when emergency and serious illness forbids transporting patients to our own hospital at Yokohama, Japan. During summer Hankow is hot and unhealthy, but the winter climate is delightful. Vessels of the navy very wisely move to Shanghai during the unhealthy season. One authority gives the annual average death rate on gunboats in the Yangtze as 5 per cent. The same authority quotes also that 22 per cent of the whole population of China is infected with syphilis.

The water supply on shore is mainly from the river, which water the Europeans render potable by filtering and boiling, after precipitating the solid matter with alum. All the year round the river water is very muddy. At Shanghai the public water supply is obtained from the Whang-poo River, a tributary of the Yangtze. The water is simply filtered and then distributed to the mains. Although the water is analyzed weekly and the analysis published, the number of cases of typhoid, dysentery, and cholera at Shanghai warrants the presumption that the water is impure.

Food in the Yangtze Valley is of excellent quality and game abounds during cold weather. Great care is necessarily taken to prevent the introduction of disease aboard ship, and in summer many articles of diet are prohibited. The Chinese are opposed to all the laws of health, and, aside from the fact that their general environment is absolutely unhygienic, one of the most potent causes of disease is in the disposition of sewage. Most of the larger foreign concessions are provided with a drainage system. In the Chinese quarter public latrines are built by excavating a reservoir in the ground and lining it with wood. Dejecta are emptied into this and sold as a valuable fertilizer. So valuable is this that the "night soil" is often stolen in bucketfuls by the natives, afterwards being scattered over the ground amongst growing vegetables. The vegetables flourish, as do also cholera, typhoid, and dysentery. Vegetables before being taken to market are washed in the nearest body of water at hand, "cesspools" seemingly preferred.

During the past year the records show 3 deaths among the crew from cholera, typhoid fever, and appendicitis, respectively.

The case of cholera occurred at Shanghai, and was contracted ashore. The man returned from forty-eight hours' liberty, and died eight hours later at the hospital. The exposed parts of the ship were at once disinfected.

The case of typhoid was doubtless contracted at Hankow, but is somewhat indefinite in origin. Death resulted from intestinal hemorrhage. Typhoid fever here is characterized by an unusually long course, and is nearly always accompanied by hemorrhage.

The cause of death in the case of appendicitis was septic peritonitis. It occurred at the Shanghai general hospital.

REPORT ON THE U. S. S. WILMINGTON.

By H. M. Tolfree, *Assistant Surgeon, U. S. Navy.*

The following changes and repairs were made in this vessel during the year, viz:

Crew's head.—This formerly consisted of a series of individual closets, with a separate flushing valve for each one. These were constantly getting out of order, leaking, water seeping through to the berth deck, and a strong effluvia was always present. In their stead a copper trough, with individual detachable seats, was put in which is easily removed and cleaned, while the trough is kept free by a continuous flush. This is found to be very satisfactory, its simplicity recommending it both from a mechanical and sanitary standpoint.

Firemens' wash room.—This room contained a wrought-iron trough with porcelain-lined basins, both of which had become badly pitted, making them difficult to keep clean and presenting an unsightly appearance. These were replaced by a brass plate trough, with individual basins of copper, easily kept clean, and presenting a very good appearance.

Decks.—The entire upper and main decks were recalked and planed smooth. As the decks consist of fireproof wood, which is porous and does not dry readily under cover, the inclosed portion of the main deck (gun deck) is kept shellacked, thereby adding to its appearance and preventing its becoming wet and soggy, though detracting from its noninflammability. The wooden deck in the machine compartment, which had become soaked with water and oil, was ripped out and replaced by two thicknesses of linoleum. This was also done in the passageway between the workshop and the dynamo room, and the hatch combings on all hatches on the berth deck were repaired.

Cold storage room.—The zinc lining, which had become badly worn, was entirely renewed in this room.

Galley.—All coppers were relined, additional shelving added for cooking utensils, and a bake oven installed outside of the galley.

Compartments.—Double bottoms and other compartments were broken out, cleaned, painted, and restowed.

Officers' water-closet.—The rubber tiling, which had become loosened as a result of the closet overflowing, was removed and the deck shellacked. It is recommended that the two closets, which are old and worn out, be replaced by new ones of same type.

As will be seen from the above there have been no material changes in the ship's internal structure during the year. Berthing space is ample and well ventilated. The sick bay is in a good location, being just forward of the midship section, and is sufficiently roomy. The only objectionable feature to be noted is the fact that the cabinet of the dispensary is placed against the bulkhead of the cold storage and is always damp in consequence.

REPORT ON THE U. S. S. MACHIAS.

By A. W. Balch, *Assistant Surgeon, U. S. Navy.*

The health of the ship has been excellent except for an epidemic of a mild form of catarrhus epidemicus, which occurred at Naples.

Ventilation in certain parts of the ship may be said to be nonexistent. In compartment A 103, containing the dispensary, 31 men are expected to sleep. The total space here is 2,850 cubic feet. The dispensary, occupied at night by one man, contains 337.5 cubic feet, and, as this is practically a closed box, there remains for the remainder of the compartment 2,512.5 cubic feet, which allows 83.7 per man. The presence of the dynamo room below, with a hatch in this compartment, increases the temperature several degrees above that of other parts of the ship. For ventilation there is one door opening forward and two small doors open aft into wing passages. There are also two louvres, which are of little use, as the exhaust blower does not work well. The doors are of no use for purposes of ventilation, except when the wind is ahead, and even then many of the men accustomed to the fireroom find it impossible to sleep here.

In the officers' quarters, ventilation is most inefficient At sea, with ports closed, the air in the after rooms becomes very foul, and headaches, sore throat, and intestinal disturbances are common.

The use of distilled water for drinking purposes has prevented the occurrence of water-borne diseases.

There is no sick bay, and no place available for the proper treatment of venereal cases. A small water-closet placed beside the dispensary would prove useful in such cases.

REPORT ON THE U. S. S. SUPPLY.

By ROBERT A. BACHMANN, *Assistant Surgeon, U. S. Navy.*

The *Supply* is an iron ship of the third rate, with a complement averaging 125 men. She was especially fitted out for tropical service as a station ship for the United States naval station, Guam, at the navy-yard, Brooklyn, N. Y., and arrived at Guam January 29, 1903. Since then, with the exception of a month's cruse to Yokohama and two small surveying trips about the island, she has not left her moorings in the harbor of San Luis d'Apra.

The mechanical ventilation of this ship is procured by exhaust and plenum systems, together with numerous electric fans. The berth deck, on which are located the wardroom, governor's quarters, sick bay, crew's quarters, and heads, is ventilated by four electric blowers supplied by two 20-inch and two 24-inch cowls. The exhaust is natural. Under ordinary circumstances the natural ventilation alone is sufficient for all spaces on the forward berth deck. On the after berth deck, where most of the crew sleep, two fans are kept going continually.

The orlop deck is supplied by a No. 8 steel fan, through a 24-inch cowl. Branch air ducts lead to the dynamo room on the port side and to the work shop on the starboard side.

The boiler room is the poorest ventilated place of the ship. It receives ventilation only from two 20-inch cowls which do not extend below the hatch. The fresh air supply of this room could be vastly improved by an extension of the cowls into the boiler room proper and by an extension of the branches of the orlop deck supply system on both sides.

The ship is well drained, dry, and free from odors. The crew has salt water shower baths and the officers have both a fresh and salt water supply for bathing purposes.

The Allen dense-air ice machines, of 2 tons capacity each, supply 500 pounds of ice daily and cool four cold-storage rooms. The distilling capacity of the ship is 2,000 gallons of water per day, but 800 gallons suffice for the average daily use. This includes fresh water for wardroom shower baths and for the daily allowance of the men.

The sick bay is located on the berth deck in the bow of the ship. It is roomy, light, dry, and well ventilated. A small dressing room is divided off from the rest of the sick bay and can be used for operating in an emergency. The dispensary is light, well ventilated, and convenient. The sick bay contains sixteen stationary bunks and six electric fans.

The diseases that present themselves most frequently are dysentery, dhobie itch, gonorrhea, furuncles, and prickly heat. Lumbricoid worms infect every native man, woman, and child in Guam at some time during their life. In children they often prove fatal, but in adults only about one-half of 1 per cent of the cases prove fatal. Furuncles are usually due to infected prickly heat papules.

The dhobie itch consists chiefly of tenia circinata, tenia imbricata, and pemphigus contagiosa.

The dysentery here is mostly bacillary. No amœbic dysentery has occurred on the ship. The cases run an afebrile, subacute course, with slow convalescence and marked tendency to recurrence. The slow convalescence is due to the debilitating climatic conditions, which also account for the low resistance the body offers to pus infection.

REPORT ON THE SECOND TORPEDO FLOTILLA.

By WALTER P. KEENE, *Acting Assistant Surgeon, U. S. Navy.*

U. S. S. Whipple.—This vessel, the flagship of the flotilla, and on which are quartered the commander of the flotilla, the commanding officer of the *Whipple*, the executive officer, and 72 men, was placed in commission February 17, 1903.

Of the men's compartments, two are forward of the boiler and engines. The first, A 9, with an air space of 1,550 cubic feet, has bunks fore and aft, in three tiers, for 18 men. Next aft is the fireman's compartment, A 10, with an air space of 1,930 cubic feet and fourteen bunks. Seventeen men sleep here, three swinging in their hammocks. The men eat and sleep in these compartments, which have large ventilators and air ports on each side. Just aft of compartment A 10 is the galley for officers and men, ventilated by an uptake around the smokestack and by two hood ventilators. Adjoining the galley is the bathroom, with two showers. On the deck, over the firemen's compartment and galley, is an inclosed deck under the bridge with the head on the port side. This is fitted with a trough, which is too wide to allow successful flushing and which should be porcelain lined. On this deck, also, is the crew's ice chest, 4 feet 6 inches in height, 2 feet in depth, and 3 feet 6 inches in width, with no air space surrounding it and only protected from the weather above by the floor of the bridge. The fire and engine rooms open directly on deck, the blowers of the former keeping them remarkably comfortable. The floor space in the engine room is large and the ventilation is good.

The two sets of men's quarters (D 10) comes next, with 10 bunks and 1,015 cubic feet of air space in each. Next aft, port and starboard, is D 11, with 8 bunks and 889 cubic feet air space on each side. In each of these compartments a large space is taken up with a water-closet and an iron sink. The number of closets could be reduced one-half and the iron sinks should be replaced by smaller porcelain wash-basins, which would be cleaner and waste less water.

U. S. S. Worden.—The *Worden* was placed in commission in May, 1903, and has on board the commanding officer, executive officer, medical officer to flotilla, and 73 men.

The quarters for the men are similar in size and location to those on the *Whipple*, but the distribution is somewhat different. The old trough, seats, and urinal, in the head, were removed while last in Norfolk, Va., and a new trough installed, narrow at the bottom and with a slight dam at the outlet, so that about two inches of water is always present. Except at one end, which is left uncovered, the trough is fitted with a plain ash seat, in one piece, with three openings and without hinges or unnecessary joints, so as to be entirely removable for cleaning. It has proven very satisfactory. A mushroom ventilator was also installed to ventilate the head, and an electric blower for the storerooms put in. The ice chest is similar to that on the *Whipple* and has been provided with an air space of 3 inches. The chart room forward, opposite the head, has been turned over entirely to the medical officer for a dispensary. It is very small, but it is as much room as the flotilla can afford. This is also the only storeroom.

The heating system is adequate to the sudden changes of temperature in these thin-skinned vessels.

Aft, in compartment D 11 on the starboard side, the water-closet was removed and a long shallow trough put in, in place of the deep iron sink, for washing purposes. This has proven a good innovation. The commanding officer of this vessel has also recommended that suitable gratings be provided forward near the water supply for washing clothes, which is now performed on the bare iron deck.

Distilled water is used entirely for drinking purposes, the plant being capable of distilling 700 gallons a day. The health of the crew has been unusually good aboard this vessel, and, since the first trials, the men have stood the strain very easily. More officers should be provided, to relieve the strain of the "watch and watch" now necessary with only two line officers.

U. S. S. Lawrence.—The *Lawrence* was placed in commission April 9, 1903, and now has a complement of 1 line officer, the pay officer of the flotilla, and 64 men.

The officers' quarters are forward and consist of four rooms and a large ward room. Immediately aft is the petty officers' compartment, with fourteen bunks and 1,425 cubic feet of air space. A portion of this is inclosed for a water-closet. Next come all the boilers, forward of the engines, two engine rooms and galley, followed by two after compartments. The first of the latter contains thirty-two bunks and has 2,200 cubic feet of air space. There are no side air ports in this or the next compartment, but each has two entrance hatches and a skylight hatch. The after, or seamen's compartment, has bunks for twenty-three men and an air space of 2,100 cubic feet. There is no provision for the sick on board excepting a torpedo-boat medical box and first-aid packages. Tourniquets also are provided for all of the gun crews of the seven 6-pounders on board.

SPECIAL REPORTS.

REPORT ON THE UNITED STATES NAVAL MEDICAL SCHOOL, WASHINGTON, D. C.

By R. A. MARMION, *Medical Director, U. S. Navy.*

The following report is submitted on the second session of the Naval Medical School. Studies were resumed on Thursday, October 1, 1903, with a class of 31 members.

My observation of the instruction of the first year convinced me that it would be wise to make an alteration in the schedule of study followed during that period, particularly with regard to the time set apart for laboratory work. This was effected by assigning Monday, Wednesday, and Friday, from 10 a. m. to 3.30 p. m., for work in the bacteriological and chemical laboratories. The class being divided into two sections, A and B, they were given work alternately in the bacteriological and chemical laboratories, inasmuch as the laboratories were not large enough, and it is not particularly desirable that they should be large enough, to accommodate the entire class at one time. Thus each section received practical instruction in each of those laboratories seven hours and a half every week, or a little over one hundred and fifty hours during the entire school term.

I was prompted to make this departure from the first year's schedule by the fact that there was so much loss of time in preliminary preparation for work and in subsequent preparations for the lectures which had been arranged to follow it. The following exhibit, therefore, will indicate the course of instruction followed during the second session, and should, I think, be adhered to in future.

Schedule of instructions and exercises at Naval Medical School, 1903–1904.

[The class will report every week day, national holidays excepted, in time to be ready for instruction to begin at 9 o'clock a. m.]

FORENOON.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Physical drill	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10
Signals, tactics, etc	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40
Hospital corps drill	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00
Section A: Bacteriological laboratory	10.00–12.30		10.00–12.30		10.00–12.30	
Section B: Chemical laboratory	10.00–12.00		10.00–12.30		10.00–12.30	
Both sections, lectures:						
Duties of naval medical officers		10.00–11.00				
Military diseases and tropical medicine		11.00–12.00				
Both sections, lecture:						
Hygiene				10.00–11.00		
Chemistry				11.00–12.00		
Both sections: Miscellaneous						10.00–12.00

Schedule of instructions and exercises at Naval Medical School, 1903–1904—**Continued.**

AFTERNOON.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Section A: Chemical laboratory	1.00- 3.30		1.00- 3.30		1.00- 2.30	
Section B: Bacteriological laboratory	1.00- 3.30		1.00- 3.30		1.00- 2.30	
Miscellaneous	3.30- 4.30	2.30- 3.30	3.30- 4.30			3.00- 4.30
Both sections: Military surgery		12.30- 1.30				
Bacteriology		1.30- 2.30				
Naval law		3.30- 4.30				
Both sections: Miscellaneous				1.00- 2.00		
Ophthalmology				2.00- 4.00		
X-ray work (Army Medical Museum)					3.00- 4.30	
Both sections: Laboratory						12.30- 3.00

During the periods marked "Miscellaneous" lectures were delivered by distinguished specialists not members of the faculty and, indeed, as it happened this last session, not even attached to the Navy in any capacity. Reference will be made to these lectures later on.

In commenting upon and explaining the nature of the instruction given in the various branches taught at this school, I shall consider the matter in the order in which they appear on the schedule referred to above.

All of the student-officers were required to report at 9 o'clock, prepared to fall in in uniform for the day's work. This invariably began at 9 o'clock on every working day and, without any exception, the work first begun consisted of instruction in physical drill for ten minutes, following strictly the manual in use on board our ships of war. Then followed instruction, either in signals; in certain portions of tactics which, in my opinion, the medical officer should be familiar with—as, for example, the manual of the sword and certain facings and marchings; or on the barometer and compass. This lasted for twenty-five minutes. Then at 9.45, followed the hospital corps drill in accordance with the Drill Regulations for the Hospital Corps of the United States Navy, which occupied the remainder of the hour until 10 o'clock.

On Tuesdays and Thursdays, as shown by the schedule, didactic instruction was given in the lecture room on each of the branches embraced in our curriculum, one hour being given to each subject except ophthalmology, which was given two consecutive hours every Thursday afternoon. As previously intimated, it seems to me that this schedule can be confidently depended upon to carry out the aims of this school most effectually. It will be remembered that during the first session of the school we were hampered considerably owing to the many disappointments to which I referred in my former report. We were in very much better state of preparation for all our work, however, at the opening of the school's second year.

I can not pass over the work done in this school without entering more into the details thereof. The work of the first morning period, which might be called largely athletic, has been, I think, extremely valuable in its results. The young men who constituted the class of student-officers sadly needed just such exercise, and with a view to emphasizing the importance of the work done during this period, namely, from 9 to 10 a. m., I have collected the data contained in the following table:

Class numbered in alphabetical order of names.	On admission.				At close of session.			
	Weight.	Chest measurements.			Weight.	Chest measurements.		
		Maximum.	Minimum.	Expansion.		Maximum.	Minimum.	Expansion.
1	136	33	31	2	149	36	32	4
2	138	35	32½	2½	165	35½	32½	3
3	151	35	31	4	161	36¾	33¼	3½
4	144½	35¼	33	2¼	155	38	34	4
5	122½	33½	30½	3	125	37	34	3
6	167	39	36½	2½	182	42	38	4
7	161	38	35	3	167	37½	34	3½
8	142	36½	33	3½	150	36½	33	3½
9	152½	36¾	34	2¾	165	38¾	35	3¾
10	132	34	31	3	133	36½	33	3½
11	130½	35	31½	3½	135	33½	30	3½
12	148	36½	33	3½	164½	36½	32½	4
13	151¾	36	32¼	3¾	182	40½	36	4½
14	132	32	28	4	146	37½	33	4½
15	135	36	33	3	145	37	32½	4½
16	130	34½	30½	4	158	38½	34	4½
17	185	39	36	3	185	39½	36	3½
18	174	38½	34	4½	173	38	34	4
19	151	37	34	3	163	38¾	35	3¾
20	125	34	30	4	133	35	30	5
21	112	35	31	4	125½	37½	34	3½
22	107	30	27	3	121	33¼	29½	3¾
23	113½	35¼	30¾	4½	125	35	30	5
24	120	32½	29	3½	125	35½	32½	3
25	120	33½	31	2½	128	34½	30	4½
26	147	36	33	3	158¼	38½	34	4½
27	159	36½	34	2½	174	38½	35	3½
28	161	36¾	32¼	4½	162	39	34	5
29	122	35	32	3	132	36	32	4
30	149	36	30	6	159	38	33½	4½
31	140	36	33	3	148	39½	36	3½

In this table one group of columns exhibits the weight, maximum and minimum chest measurements, and expansion at the date of the student-officer's entrance to the service, and the other group of columns shows the same data taken after the close of the year's studies. I regard it as a very interesting and instructive table and as a very strong argument in favor of adhering to this feature of our instruction. The increase in weight can not all be credited to the fact that the students have been eating more, getting better food or living a more regular life. This naturally had something to do with it in some cases, but I maintain that the setting-up drill had more to do with it than anything else, because of the improvement in metabolism. In support of this I refer to certain cases where the expansion and chest measurements have increased much out of proportion to the weight of the student-officer. I think that this statement will be entitled to additional weight when it is reflected that during the entire period of five months the members of the class were engaged in study from 9 o'clock in the morning until 4 in the afternoon, with the exception of a short interval at noon for luncheon; in other words, their work here has been about as hard as it has been at the medical schools, and yet they have all gained in physique and in soldierly bearing as the result of their term of instruction. Incidentally, too, the examination reports show how very thoroughly the work assigned to this period has been performed, as indicated by the marks which they have obtained in these branches. With a view to improving and strengthening the wrist and arm movements, exercise with singlesticks was this year added to the instruction in this course.

The course of lectures on "The Duties of Naval Medical Officers" has gone most thoroughly into all subjects that could possibly be grouped under that head, and I feel safe in stating that any one of the graduates of this school can be depended upon to perform all of the duties of the naval medical officer, whether ashore or afloat, without being obliged to seek instruction from other sources. The facts that we have at the present time no modern book of instructions to medical officers, and that hitherto there has been so much that was traditional in the service to which we had to appeal for guidance in the performance of duty have not been lost sight of; in a word, the history of our service and the methods now in force in every branch of the medical service have been carefully enlarged upon and explained to the class.

The course on "Military Diseases and Tropical Medicine" was kept always abreast of the progress of medical science in these directions, and in addition to lectures given by the instructor in those branches, this course was enriched by twelve lectures given by Dr. Charles W. Stiles, of the Public Health and Marine-Hospital Service, on "Medical zoology." The value of this course can not be overestimated, being of intense interest and most searching in precisely the directions in which our class needed instruction. Prof. L. O. Howard also gave the class a lecture on the subject of "The transmission of disease by mosquitoes," his lecture, as well as those of Doctor Stiles, being illustrated where necessary by diagrams and lantern slides. Col. William C. Gorgas, of the Army Medical Corps, gave a very valuable and interesting lecture on the subject of the sanitation of Habana, whereby under his guidance, the city was cleared of yellow fever and of mosquitoes capable of transmitting it. Lieut. James Carroll, of the Army Medical Corps, also gave an interesting lecture on the subject of the experimental work which led to the establishment on a firm basis of the views now held by the medical profession as to the transmission of yellow fever. Two lectures on the subject of "Immunity," which properly belonged also to this course, were given by Dr. M. J. Rosenau, of the Public Health and Marine-Hospital Service, whose value as a teacher in this field need not be enlarged upon by me. Dr. Juan Guiteras, at present health officer of Habana, and known the world over in connection with yellow fever, gave the class a valuable lecture on the subject of the etiology, diagnosis, and treatment of that disease.

The course in "Military Surgery" embraced practical instruction in X-ray work. As it had been impracticable for us to install our own apparatus for this purpose, advantage was taken of the facilities at the Army Medical School for this kind of instruction, and every Friday afternoon the class received instruction from Dr. William M. Gray, of the Army Medical Museum. Maj. W. C. Borden, of the army medical service, also aided us in this particular work. Maj. L. A. La Garde, of the Army Medical Corps, who has been recently conducting a series of experiments under the auspices of the Ordnance Department of the Army on the subject of the effect of modern small-arm projectiles upon the human body, gave the class the benefit of his extensive studies and experience in that direction. Operations on the cadaver have also formed a prominent feature of the instruction under this head.

As supplementary to the course in surgery I must refer to four valuable lectures on what I called "Dental Emergencies," given by Dr. William N. Cogan, of this city, dean of the faculty of the dental department of Georgetown University. This instruction was directed in thoroughly practical channels and related to the extension of relief in those cases where it is desirable to relieve suffering until such time as the patient can have radical treatment by regular dentists. The theory and principles of extraction were fully enlarged upon, and the technique for the preparation of palliative remedies was explained to the class. It was an extremely interesting feature of the course of instruction.

The lectures of Doctors Stiles and Rosenau naturally appertained, to a very great extent, to the course on bacteriology, as well as to that on tropical diseases, and should be referred to as a portion of the instruction in bacteriology. The lectures and laboratory work in chemistry were of such a nature as to meet the special requirements of the naval service in general, and, in addition to covering the ground which naval hygiene mapped out, they were so framed as to meet demands from other branches of the service likely to call for the intervention of a knowledge of chemistry. One didactic lecture was given each week on this subject and, as has been previously stated, seven hours and a half each week were devoted to practical work in the laboratory.

The course in "Ophthalmology" embraced the subject of the gross and microscopic anatomy of the eye, its diseases, and the operations usually practiced on the globe of the eye, together with the subjects of refraction, ophthalmoscopy, etc.

The course of the lectures on "Hygiene" has covered quite thoroughly all of the ground which it was deemed necessary or desirable to go over under that head. It has consisted of one lecture each week and of practical work in the chemical laboratory as well as in the microscopical department. The examination of foods has naturally been a prominent part of the practical work in hygiene and has formed an important part of the laboratory work.

The course of instruction in "Naval Law," given by Mr. E. P. Hanna, solicitor of the Navy Department, was carefully framed so as to impart such knowledge to the student-officers as every naval officer should have. It has been a matter of great interest to note the good impression made by this course of lectures, as shown by the examination papers.

During the last five weeks of the course one hour was devoted each Saturday morning to debates on medical matters which had been studied during the previous months of the session. During the middle of the week from four to six subjects were posted on the bulletin board, together with the announcement that they would be the topics for discussion the following Saturday. The names of those who were destined to be the debaters were not announced until the class assembled in the lecture room for the debate, so that all were required to be in readiness to mount the rostrum and take part in the discussion, although only two were selected to consider each subject. One of the main objects of this new feature was to accustom the student-officers to speak in public and to conquer their stage fright, in which respect, I am glad to say, it was eminently successful; certainly as successful as might have been expected during the short time. It was a matter of very great interest and not a little surprise to the faculty to see how well the gentlemen taking part in the discussions acquitted themselves. I am so much encouraged with the experiment that it will be inaugurated during the first week of the next term of the school, and kept up throughout. I doubt not that when the next class graduates every one of its members will have acquired such composure that when called upon to speak in public they will acquit themselves most creditably under all circumstances.

During the first year of the school, with a class of only 12, it was found practically impossible to devote to the use of the student-officers such space as was necessary for cloakroom and as a sitting room during the short time that they had leisure. To use the lecture room for these purposes was out of the question, and the only way by which the necessities of the situation could be met was to put an additional story on the wing which extends from the main building to the library. This became all the more urgent when we found that instead of a class of 12, as above mentioned, we had to meet the requirements of a class of 31. With a view to remedying this condition of affairs it was planned to construct the story to which I have just referred, and it was turned over to the student-officers for use on the reassembling of the class after the Christmas vacation. It contains abundant accommodations, such as clothes lockers, toilet rooms, and lavatories for 42 persons, and, indeed, a larger number still could be comfortably accommodated here.

It has been a matter of some inconvenience to us that we were obliged to send the class out for instruction in X-ray work. As will be readily seen, it has taken a good deal of time, owing to the distance of the Army Medical School from ours. Since the close of the school term we have installed upon these premises a superb portable X-ray apparatus of the most modern type, and the buildings have been wired for electric light, so that we shall be prepared next autumn to conduct within the walls of this building all of the instruction which is marked out for the class. Hitherto, owing to the fact that we had no electric light in the school, we have been obliged to employ calcium light for our magic-lantern work. Next session we shall have resources of our own for conducting this part of the instruction; in a word, the Naval Medical School will begin its third term with everything at hand that can be needed for the instruction of the student-officers except such facilities as appertain to the practical work on the cadaver. Through the kindness of the medical department of Columbian University we have the use of their cold-storage room for preserving our anatomical material and also the free use of their dissecting room for all purposes, and I desire, in this connection, to say that the courtesy of the Columbian University in this matter is highly appreciated. It is neither contemplated, nor indeed desired, that this part of the instruction should be conducted on the school premises.

I took occasion in my last report to refer to the cordial interest which has been taken in our work here by the local medical profession, and the promptness with which every one called upon by me has responded to my request to give the class of student-officers the benefit of their studies and experience. That same spirit has continued, and it has been a great pleasure to me to note the interest which our colleagues in civil life take in the work being done by the Naval Medical School.

The members of the faculty have frequently discussed the course of instruction, and there is very little, if any, change that we deem it desirable to make in the course followed during the past year. I think I am justified in saying that we shall have in our equipment and in readiness for use next session all that we need for the work in hand. In addition to the things already alluded to as having been added to our equipment since the close of the first year's course of instruction, I must mention a platform for use in hospital corps drill in handling the wounded on board ship and in passing them from one deck to another through hatches; also an apparatus for instruction in obstacle drill, prescribed by the naval hospital corps drill manual. A hospital tent of the United States Army pattern has also been added to our equipment, so that the student officers may now be trained in the drill prescribed for erecting a hospital tent.

In addition to the instruction which appertains especially to the requirements of the naval medical officer, I beg to call attention to the desirability of teaching him how to swim. A careful canvass shows that quite a number of those of last year's class can not swim at all, while others claim to be able to swim only a little. There is quite as much necessity for the medical officer to be a swimmer as for the line officer, and, inasmuch as the Government has recognized this fact and has provided for instruction in swimming at the Naval Academy, I strongly recommend the serious consideration of this matter. There is abundant space on these grounds for the erection of a swimming tank, and the wages of a competent instructor in swimming would be insignificant compared with the good work that may be done in that direction.

The pressure of water has not been sufficient to reach the tank on top of the main building, and it has been, until recently, necessary to fill it by means of a steam pump. Within a few weeks past, namely, since the wiring of the building for electric light and power, we have installed an automatic electric pump which works admirably and dispenses entirely with using the boilers during the summer.

Realizing that we were to a very great extent unprotected in case of fire because of the unsatisfactory state of the water supply, I invited the chief of the District of Columbia fire department to make a thorough inspection of the premises with a view to informing me what had best be done in order to establish the best possible protection against fire. His examination was very thorough, and as the result of his report to me I have already caused such changes to be made as were practicable at this time. A number of new fire extinguishers were procured and placed at the points suggested by him and the necessary steps were taken to get the best possible service from our hose. In addition to this, a fire-alarm box has been placed in a convenient position in the main hall and the building has been connected with the central fire department. Inasmuch as our main dependence must be upon the fire department, owing to the feeble water pressure, this station has been placed in a class which will insure very prompt service, so that we may feel reasonably secure.

In conclusion, I can not refrain from saying that the Medical Corps of our Navy, and, therefore, the naval service at large, is to be congratulated upon the firm footing of the Naval Medical School. We can, I think, with justice, boast of a curriculum thoroughly adapted to the requirements of our service and so planned as to increase the general efficiency of the naval medical officers. The officers graduating from this school can go forth confidently to meet the new and strange duties which they are called upon to perform with little or no inconvenience or discomfort. They will have received not merely a much broader education from a medical standpoint than it is practicable for them to obtain in the medical colleges of our country, but they will have, in addition to that, a knowledge of matters purely naval which is sure to enhance their value to the service in fields other than those in which the medical officer of a few years ago was ever called upon to labor.

The possible usefulness of this school is not confined to the good work which it is doing and will continue to do for those who enter the regular medical service. When the conditions of our service will permit, those who have not already had the advantage of the course of training in the school may avail themselves of certain portions of the instruction imparted here. Moreover, in view of the very strong probability of the establishment of a naval reserve, it occurs to me that the possibility of eventually admitting its officers to the privileges of the instruction here in certain parts of the course, at least, is worthy of consideration. It is not likely that there will be many who can avail themselves of the entire course, since it would probably involve too long an absence from their private practice, but certain portions of the course would be most valuable to them and would tend to render them more efficient when the time comes for them to be amalgamated, in case of war, with the regular Medical Corps. Apart from the advantage to be derived in the future from such a step as this, the associations which it would create between the naval members of the medical profession and their lay brethren would be sure to have advantageous results for both. The naval medical service is too little known to our brethren in civil life, and any course which will bring us more in contact with them should be adopted. The value of the school to the country at large would thus be made evident, while a healthy interest would be aroused in its behalf.

I can not close this report without testifying to the cordial and earnest support which I have received from all of the members of the faculty. Perfect harmony has existed throughout the entire school year, and there has been no abatement whatever of the zeal and deep interest which they have taken in the school work from its very inception.

I recommend that the third term open on the 1st of October, as was the case last year, and that the instruction be continued for a period of six months, if practicable, as that length of time can be very profitably employed.

REPORT ON LABORATORY AND CLINICAL DIPHTHERIA OCCURRING AT THE UNITED STATES NAVAL HOSPITAL, NEWPORT, R. I.

By Howard Wells, *Medical Inspector, U. S. Navy.*

Between May 8 and November 21, 1903, 321 cases of laboratory and clinical diphtheria were under treatment at this hospital. Fifty-two of the 321 cases were under treatment on two different occasions, having either been sent back for further isolation on account of the presence of Klebs-Loeffler bacillus in the throat or, having once been isolated because of the presence of the bacillus, were returned at a later period with clinical diphtheria. During this period all of the men and boys on the station were examined. After a thorough disinfection it was found that the infection still existed at the apprentice barracks, and all apprentices were again examined. These 321 cases represent the number, out of 1,651 men and boys, having the bacillus in their throats, either with or without clinical evidence of diptheria, or over 19 per cent.

The total number showing clinical symptons was 57, or about 14½ per cent of the number affected. The membrane in these cases was found mainly on the tonsil or pharynx. As they came under observation early in the disease, and the administration of antitoxin was prompt, most of the cases ran a mild course. Among the 57 cases of clinical diptheria there were no deaths.

The diagnosis in most cases was made by sixteen-hour culture, and the bacillus stained by the Neisser method, the total number of cultures examined during this period being 4,083. The following experiments reported by Medical Director Fitzsimons were made to prove the virulence of the bacilli:

No. 1. A pure culture was made from an apprentice boy showing mild local and clinical symptoms of diphtheria. One cubic centimeter of a broth culture was injected into a guinea pig. It showed symptoms of paralysis and died in thirty-two hours. An inflammatory area was found at the seat of the inoculation and a pure culture of diphtheria bacillus was made from it.

No. 2. A culture was made from the throat of a boy with local clinical symptoms. Failed to get a pure culture. In the meantime the throat was treated, and on the fifth day another culture was taken, from which a pure culture of the diphtheria bacillus was made. A broth from this was injected into two guinea pigs, each weighing 250 gms. One of them received 200 units of antitoxin and showed no symptoms of the disease. The other died at the end of thirty-six hours, and a pure culture of the diphtheria bacillus was made from the inflammatory area at the seat of inoculation.

It appears from the above that the virulent diphtheria bacilli were present in all cases occurring at this place; that is, in cases with and without clinical symptoms.

At first all cases were discharged on one negative examination, but this plan did not prove efficient. Of 204 cases discharged on a single negative, 47, or 23 per cent, were found later to still have the bacillus in their throats. The plan of discharging after two consecutive negatives was then followed, but this also did not prove efficient. Of 27 cases discharged after two consecutive negatives, 5, or about 18½ per cent, were found on a later examination to have the bacillus in the throat. The plan of discharging after three consecutive negatives was then adopted, and of these no case was returned with the bacillus in the throat.

The average number of days under treatment of those discharged after a single negative was nineteen days, while the average number of days under treatment of those discharged after three consecutive negatives was forty-one days.

At the time diphtheria appeared, measels, mumps, scarlet fever, and chicken pox were prevalent among the apprentices. These diseases had to be quarantined in tents, owing to the lack of room in the infectious building. Thirty-one hospital tents, strongly constructed, placed end to end so as to form pavilions, 7 wall A-tents, and 1 Sibley tent were arranged in camps for the isolation of these respective diseases; and in addition to these a suspect-camp was laid out. When the plan of discharging on two, and later three, negatives was adopted, three camps were arranged, viz, first, one for tonsillitis or suspected cases; second, a camp called camp No. 1, in which the patients received local treatment for at least seven days before a culture was taken; third, a camp called No. 2, for detention until third negative. The routine of these camps was as follows:

On entrance, diphtheria patients are placed in camp No. 1, consisting of two pavilions of four tents each and the infectious building. Patients presenting clinical symptoms are placed in the building.

On entrance, patients having clinical symptons are put to bed, temperature, pulse, etc., taken, and antitoxin, from 4,000 to 6,000 units, given, the amount thereafter regulated according to the condition of the patient.

Local antiseptics are given as follows:

At 8 a. m. nurse No. 1 commences to spray the throat of every patient with the compressed-air atomizer for four minutes with bichloride, 1:4,000. The patient then passes over to nurse No. 2, who sprays the nasal cavities with Dobell's solution. This process is repeated at 4 p. m. At 2 p. m. patients having chronic tonsillitis have, in addition to the above treatment, their tonsils swabbed with tincture ferric chloride and glycerin (1 dram to ounce). Cultures are taken from patients seven days from entrance, and if found negative they go to camp No. 2. If found positive they remain in camp No. 1. Continue the treatment as above for seven days more, then another culture is taken.

All local antiseptic treatment in camp No. 1 is suspended for twenty-four hours before the taking of cultures.

Before going from camp No. 1 to camp No. 2 the patient's effects are thoroughly sterilized for half an hour in steam sterilizers; such things as rubber and leather goods are not sterilized by steam, but are fumigated for twelve hours with formaldehyde gas. The patient then takes a bath in 1:2,000 bichloride.

In camp No. 2 treatment is discontinued. After five days a culture is taken, and if found negative patient waits without treatment five days more, and if it is then found negative he is discharged.

Before discharge his person and effects are fumigated and sterilized as above.

If either of the cultures in camp No. 2 prove positive, patient is transferred to camp No. 1 and routine treatment as above is gone through with again.

Patients remained under treatment in camp No. 1 on an average of twenty-two days before the first negative culture was obtained. The longest period before obtaining a negative culture was one hundred and sixty-seven days, the shortest four days. The former was a case of chronic diphtheria, with ragged tonsils; the latter was a case of laboratory diphtheria—that is, a case without membrane, fever, or other symptoms, and having only the bacillus in the throat. Such cases are the means of spreading the disease through mess gear, etc. The following table will show more clearly the average period before a negative culture was obtained:

First negative obtained in from—	Cases
1 to 5 days' treatment	16
5 to 10 days' treatment	86
10 to 15 days' treatment	94
15 to 20 days' treatment	30
20 to 25 days' treatment	46
25 to 50 days' treatment	69
50 to 75 days' treatment	21
75 to 100 days' treatment	7
100 to 125 days' treatment	2
125 to 150 days' treatment	1
150 to 175 days' treatment	1

In by far the greater number in which positive culture persisted after thirty days' treatment, ragged tonsils with nasal or pharyngeal catarrh existed. In those cases in which the bacillus persisted one hundred days or over, only one manifested clinical diphtheria. In all but two of these, as soon as the first negative culture was obtained the next two consecutive cultures were negative.

Of 168 cases who were discharged on three consecutive negatives, 32, or a little over 19 per cent, were returned to camp No. 1 after five days without treatment, the bacillus having reappeared in their throats; the reason advanced for this being the existence of ragged tonsils, pharyngeal and nasal catarrh, etc., the bacillus still existing in crypts not reached by the solution, and becoming manifest after five days without treatment. The resistance of the bacillus under these circumstances may be better understood when it is noted that out of these 32, after the next negative and an interval of five days, 7, or a little over 21 per cent, were again returned to camp No. 1 for further treatment on account of the presence of the bacillus in their throats.

Of the 168 cases, only 5, however, were found positive after 2 consecutive negatives. Three of these 5 cases were of the 32 first mentioned, which were found positive after 1 negative. One of the remaining 2 was found positive on two occasions after 2 consecutive negatives. It is not probable that the reappearance of the bacillus in all throats was due to chronic catarrh, tonsilar crypts, etc., but a certain number, being susceptible, may have acquired the infection on return to the barracks. In support of this statement the following case is mentioned: An apprentice was examined August 8, found negative; was sent to hospital August 12 with tonsillitis; culture taken and found negative; after seven days he was discharged to duty, and a culture taken at this time was also negative. On August 24 he was sent here with laboratory diphtheria, and the bacillus persisted twenty-seven days in the throat.

Out of 271 cases of laboratory diphtheria sent to this hospital for isolation and treatment, 5 developed clinical diphtheria after a varying number of days of isolation; and, notwithstanding local treatment, these periods were ten, twenty, twenty-three, fifty-eight, and seventy-eight days, respectively.

Of the first 52 cases of laboratory diphtheria admitted, each received 2,000 units of antitoxin on entrance, but the antitoxin was then discontinued except in cases having clinical symptoms. The administration of antitoxin does not appear to shorten the period during which the bacillus persists in the throat, the average period in these cases being a little over eighteen days, as compared with twenty-two days, the average in the total cases. None of the 5 cases mentioned as developing clinical symptoms during isolation were given antitoxin on entrance. The average total dose of antitoxin was 6,000 units, the largest amount given in any one case being 18,000 units. No untoward effects were noticed in any case after administering antitoxin, except in 1 or 2 cases an erythematous rash appeared.

The sequelæ to diphtheria noted were 1 case of acute nephritis and 1 of multiple neuritis affecting the limbs. In both cases the patients quickly recovered, the former being in the hospital sixty-three days and the latter forty-five days.

Many cases with laboratory diphtheria were suffering from other affections, in which the vital resistance would appear to have been weakened; but none of these cases at any time developed clinical diphtheria. Among these cases were 3 pneumonias, 1 abscess of the lung, 1 pleurisy with effusion, 1 bronchopneumonia, 1 dysentery, 1 rheumatism, 1 otitis media, 1 endocarditis, 3 bronchitis, 1 periostitis, 1 scarlet fever, 4 mumps, and 51 measles.

Of 78 cases admitted with tonsillitis, 27 showed the presence of the Klebs-Loeffler bacillus in the throat. The remaining 51 showed negative cultures. Among the 51 cases which were negative there were several with a false membrane on tonsils and pharynx.

Of the hospital corps detailed for duty with diphtheria patients all were examined from time to time, and 4 showed the presence of bacillus in the throat. Two of these developed clinical diphtheria.

On November 9 the re-enlistment of apprentices, which had been discontinued during the epidemic, was resumed. Between this date and November 21, 108 recruits were received on the station; 3 of these boys were sent to the hospital with laboratory diphtheria, or nearly 3 per cent. This would indicate that so long as this station is a rendezvous for young apprentices the isolation of laboratory diphtheria will be demanded.

REPORT ON LOBAR PNEUMONIA AT THE UNITED STATES NAVAL HOSPITAL, NEWPORT, R. I.

By HOWARD WELLS, *Medical Inspector, U. S. Navy.*

During the year, 101 cases of lobar pneumonia were treated at this hospital; 89 of these cases were between the ages of 15 and 17; the remaining 12 ranged in age from 18 to 30 years. Of the 101 cases, 2 died, one aged 15 and the other aged 30 years. This is a remarkably low death rate when it is remembered that the death rate in civil hospitals ranges from 20.4 per cent to 38.01 per cent. Of 97 cases under 20 years the death rate was 1.03 per cent as compared with 3.7 per cent in statistics of Hadden, McKenzie, and Ord. Aside from the age of these patients, their physical standard may explain to some extent the low mortality.

The season of the year had little effect on the number admitted, but the relation of the number of cases to overcrowding at the barracks is quite marked. The greatest number of cases occurred during the spring months, when the barracks were crowded to double their capacity; diminution occurred toward the end of spring, when the apprentices went into camp on account of an epidemic of diphtheria. The disease again reappeared during the summer, when a small number of apprentices reoccupied the barracks after its disinfection, but as 175 boys were crowded into two dormitories the overcrowding continued to all intents. This was quickly remedied by reducing the number in each dormitory, and as almost all of the apprentices were later drafted from the station, pneumonia disappeared. It began again with renewed energy early in December, 8 cases occurring within three days, due, no doubt, to the fact that on account of delay in repairing the new barracks, the newcomers' barracks were crowded beyond their capacity. This was quickly remedied by sending the boys into the finished dormitories of the new barracks, and no case has been sent to the hospital since that date.

Many of the boys were received with well-developed evidences of consolidation. The physical signs were always distinct, owing to the thinness of the chest wall. The expectoration was either the frothy, blood-stained, or the thin, watery, prune-juice variety. Consolidation was most frequently present in the lower right lobe (53 cases), next the lower left lobe (37 cases), then the upper right lobe (9 cases). There were two cases of double pneumonia, in both of which cases the lower lobes were affected.

Crisis appeared within a wide range of from two to twelve days, most frequently from five to seven days (53 cases). The following table will show the day of crisis in the 101 cases:

	Cases.
Crises on second day of disease	3
Crises on third day of disease	4
Crises on fourth day of disease	11
Crises on fifth day of disease	17
Crises on sixth day of disease	16
Crises on seventh day of disease	20
Crises on eighth day of disease	8
Crises on ninth day of disease	7
Crises on tenth day of disease	3
Crises on eleventh day of disease	1
Crises on twelfth day of disease	1

It may be seen that a little over 80 per cent reached crisis before the eighth day.

One of the most frequent of the sequelæ was delayed resolution. There were 5 of these cases. In two cases the area broke down, forming an abscess, the contents of which were coughed up. The abscess in the first case broke after thirty-one days, in the other after thirty-six days. The febrile temperature in both these cases continued for some time, the total number of days of fever for the first case being fifty-six and for the second fifty-five. Both made a rapid recovery, gained weight, and returned to duty. The febrile temperature in the remainder continued forty-seven, sixty-four, and sixty-five days, respectively. Two of these cases slowly cleared up, gained weight, and returned to duty; the third was invalidid from the service with thickened pleura.

There were 5 cases of pleurisy, resulting in empyema. One case fully recovered and returned to duty; 2 were invalided from the service; 1, recently operated upon, is still under treatment, and 1 died. The case that died was further complicated by a deep jaundice. There were many cases of associated otitis media.

Two cases of complicating endocarditis developed. Each made a good recovery from pneumonia, but permanent valvular lesion made it necessary to invalid them from the service. One case each of palpitation, meningitis, and rheumatism occurred as a complication. The two former recovered; the latter died.

The average number of days in hospital was 30.9, at the end of which time the boys were returned to duty in good health with the exceptions noted.

Creasotal was the treatment in all cases. In severe cases, 15 minims were given every three hours, night and day, making a total of 120 minims in twenty-four hours. The average case, however, received 10 minims every three hours, or a total of 80 minims in twenty-four hours. Very few cases received any other medication. Hyperpyrexia was treated by cold sponging of the limbs, which was most agreeable to the patients. Heart stimulants were administered in cases with a weak pulse or much delirium. The only untoward effects noted from the administration of large doses of creasotal was a slight diarrhea.

The necessity for prophylaxis against respiratory diseases depends much on the following factors: (1) Dampness, (2) overcrowding, (3) faulty ventilation, (4) rigorous winter climate.

Dampness may be expected to be constantly present in a building built of a mixture of mortar and gravel, which absorbs rainfall, and upon which moss grows luxuriantly on the northern exposure. Foul air was to be expected in the dormitories, where nothing was provided to carry it off, and in the class rooms where not even a transom was provided. Overcrowding must not only include a limit to the capacity of any one building, but also that of the dormitories. The number of occupants should be definitely fixed and not exceeded. The rigorous winter climate can not account for the large number of cases of pneumonia which continued during the summer, but it will account for other respiratory diseases, which brings the total sick days for this class at this hospital to 10,205—3,461 being the total sick days for pneumonia. Improper clothing and change from a warm to a severe climate, are factors which will help to explain the many other respiratory diseases represented by 6,744 sick days. Dampness, foul air, and overcrowding are the three worst violations of the elementary principles of hygiene, and until all these are corrected we can hope for no change in the conditions that exist.

SURGICAL REPORT ON THE POWDER EXPLOSION AND FIRE ON THE U. S. S. MISSOURI, APRIL 13, 1904.

By J. F. URIE, *Surgeon, U. S. Navy.*

The following history of an accidental powder explosion and resulting fire on this vessel is reported here as a contribution to the records of naval surgery, though the injuries caused by the disaster present nothing of peculiar surgical interest.

On the morning of the 13th of April, 1904, while the battle ship *Missouri* was at target practice in the Gulf of Mexico, off Pensacola, Fla., a catastrophe of alarming proportions occurred, due to the accidental ignition of smokeless powder in the after 12-inch turret, which was immediately followed by fire of intense character from the burning of a large quantity of smokeless powder in the handling room below. It is estimated that 3 charges of 360 pounds each were consumed, 1 in the turret and 2 in the handling room.

The initial explosion was probably not an explosion in the general accepted meaning of the term as applied to the discharge of gunpowder, though a distinct report was heard and an outburst of burning gas followed. This occurred shortly after one of the 12-inch guns in the turret had been discharged, and during the process of loading it for the next shot.

The court of inquiry convened to investigate the disaster found the cause to be the ignition of the powder charge with which the gun was about to be loaded by the residual flame of gas of the previous discharge, which had not escaped from the bore.

The turret crew consisted of an officer in charge and 14 men. Besides these there were 3 additional officers stationed there as umpires and timekeepers and 1 private marine as recorder. On the top of the turret was an apprentice boy to transmit information. Below, in the handling room, 1 officer and 13 men were stationed, with 2 men in the adjacent powder magazine.

The suddenness and intensity of the flame made escape from either the turret or handling room practically impossible. One man got part way out of the turret through one of the small openings above. Another is supposed to have fallen out of the entrance to the turret in the overhang of the floor.` He was seen on the quarter deck, his clothing in flames, and went overboard before help could reach him. Every officer and man in the turret lost his life. Of those below, 4 men escaped. The 2 in the magazine, with rare presence of mind, closed with an empty powder can the opening in the door through which powder was passed to the handling room, efficiently keeping out the flame. One escaped uninjured and the other with only a superficial burn of the hand. The two others were near the entrance to the handling room leading from the deck above, and made their way out, though badly burned on the exposed parts of their bodies, the face and hands especially.

Of the 36 people stationed in the parts of the ship subjected to the flame, 24 were either dead when brought on deck or expired immediately after. One man, as stated above, went overboard and his body was not recovered. Ten only required medical and surgical attention, and of these 7 died within twenty-four hours. There was nothing of peculiar surgical interest to record in regard to the effects produced on the bodies of the victims.

The bodies of the unfortunate victims showed no injury suggestive of the disruptive action of exploding powder. The lesions were those to be expected as a result of exposure to sudden and intense flame of short duration. The time during which the victims were exposed is variously estimated at from one to three minutes. It is probable that many of the unfortunates died from the internal effects of the flames. The two people on top of the turret were the worst burned externally, the integument of there whole bodies being hardened, charred and split open in places. They lived four hours, however, and were conscious till toward the end. Many of the victims showed a peculiar hardened, blanched, and waxy appearance of the exposed skin and mucous membranes, with charring only of the hair.

The two people who escaped from the handling room did not appear to be badly burned at first, but after twenty-four hours an intense, deep-seated inflammatory action set in. One recovered without necrosis of tissue; the other was transferred to the naval hospital at Pensacola, with the appearance of beginning gangrene of the skin of face, hands, and forearms. His condition was improving, however, at the time of the departure of this vessel from that port.

The gases generated by the combustion of the 720 pounds of smokeless powder in the handling room permeated the different parts of the ship in its vicinity and was a source of danger to those fighting the fire and rescuing the victims. The composition of these gases has not yet been fully determined. It is more than probable that different reactions take place in the combustion of this compound in confined and in open spaces. The vapor escaping from the muzzle of a gun after discharge has a distinctly reddish tint and the odor of nitrous acid. Carbon monoxide and marsh gas are said to be generated in the destruction of smokeless powder.

A number of officers and men were variously affected by inhalation of the gases. An exhilaration was experienced at first, followed in a few cases by partial loss of consciousness. This was probably the effect of the absorption of the compounds of nitrogen—nitrites and nitrous acid. Other effects of the inhalation of the products of combustion were those caused by the irritative action of gases on the lining of the respiratory tract. Two cases of œdema pulmonalis resulted, 1 proving fatal, and 8 others were severely affected. These latter had symptoms indicating an acute inflammation of the upper respiratory tract, viz, cough, sternal pain, burning in character, and blood-streaked expectoration, with slightly distressed breathing. A large number of the officers and men were affected to the extent of experiencing a soreness of the trachea and bronchi and a slight distress in breathing. All recovered in a few days except the one mentioned. This man was one of the first to enter the fire area and directed the hose. It was noticed that he acted incoordinately and was partially overcome when taken into the air. He revived from the effect of the absorbed gases, but acute œdema of the lungs supervened, and he died after a struggle of twelve hours. Another case of pulmonary œdema was in a precarious condition for forty-eight hours. There has been apparently no after effects in this case since recovery.

The treatment of those injured in the disaster was directed toward supporting life, relieving pain, and lessening shock. The charred clothing was removed, and the burned areas were cleansed and enveloped in gauze wet with one-half per cent picric-acid solution. Morphine, iced drinks, and stimulants were freely administered.

The victims in the turret had to be removed through the small openings in the top and from there lowered to the deck below. The most expeditious and humane way was found to be by means of blankets, on which the bodies were laid and then raised and lowered suspended by the four corners. The transportation boards proved to be impracticable on account of the inadvisability of using the straps and the time required in adjusting them, as some of the victims gave evidence of life. The contracted space in the turret and the distorted posture of the bodies also made the use of the board impracticable. The dead and injured below were taken out by hand and on stretchers.

REPORT ON THE FOURTH ANNUAL MEETING OF THE AMERICAN ROENTGEN RAY SOCIETY.

By C. F. Stokes, *Surgeon, U. S. Navy.*

In obedience to the Department's order I attended the fourth annual meeting of the American Roentgen Ray Society, held at Philadelphia, Pa., December 9 and 10, 1903. Forenoon, afternoon, and evening sessions were held in order that the elaborate programme could be carried out in the two days set apart for the meeting.

Prof. Arthur W. Goodspeed, of the University of Pennsylvania, president of the society, delivered a very instructive address on "The trend of modern thought upon the subatomic structure of matter."

The papers read and discussed were of great interest and were characterized by an unusual amount of frankness in reporting failures as well as successes, and in admitting a lack of knowledge where it existed in the discussion of this new and as yet unfathomed electric manifestation.

The effect of X rays upon normal and pathological tissues were discussed, and also their influence upon lower animal life and bacterial forms.

I was particularly impressed with the stress that was laid upon the danger to the operator in X-ray manipulations. Few of those present had escaped severe burns and other disagreeable and persistent manifestations of various sorts, the result of repeated exposures to the Roentgen rays. Operators were strongly urged to exercise great care in protecting themselves from these painful and disfiguring mishaps in which treatment offers so little relief.

Dr. Clarence Edward Skinner, of New Haven, Conn., reported 2 cases of very extensive and late appearing necrosis of the trunk, which occurred in his practice, and which followed only moderate therapeutic exposures to these rays. The effect of high and low tubes were discussed, but just what high tubes, low tubes, hard tubes, and soft tubes are was not brought out with any degree of clearness, and from what I could gather on this point the fluoroscopic test still remains the most satisfactory method we have of determining the condition of a tube.

The subject of X rays in diagnosis was considered in several papers. Localization methods were discussed at length. That of Dr. W. E. Sweet, of Philadelphia, is, in my opinion, the most efficacious. Brilliant results by the Roentgen method in the diagnosis of renal calculus were reported, and the fact that the correct interpretation of these skiagraphs is by no means the least important feature of the technique was emphasized.

Skiagraphy, and particularly developers, received much attention, impressing upon one the importance of taking good radiographs in order that our deductions derived from a study of them may not be faulty.

Many injuries heretofore classed as strains and sprains Roentgen rays have shown to be bone lesions as well. It is not uncommon to find a bit of the fifth metatarsal bone torn off in severe sprains of the ankle.

In dentistry the X ray has a wide and important field of usefulness, not only in diagnosis, but also as a guide to the proper treatment of certain conditions. In cases of deformity, abnormalities of development, and unerupted teeth skiagraphs of these parts are of great value.

Some interesting lantern slides showing the development of the skeleton, radiographically considered, were exhibited. Skiagraphs of bones at different ages showing the centers of ossification and the development demonstrated very forcibly the usefulness of this method of teaching osteology.

Roentgen rays are therapeutically indicated in the following conditions, viz: In certain inflammatory diseases of the skin like eczema, psoriasis, lupus erythematosus, and lichen planus; in certain bacterial diseases of the skin like acne, sycosis, lupus vulgaris, and blastomycosis; and lastly in conditions where we wish to cause the destruction of tissues of low resistance, as in lupus vulgaris, carcinoma, and sarcoma.

The results of treatment in the superficially located malignant growths, where the glands have not been invaded, have been marvelously successful in some cases and disappointing in others. The cosmetic effects where exposed parts have been treated are excellent, for when properly applied only the diseased tissues are destroyed and very little scarring results.

Obstinate skin lesions often yield with amazing promptness, as, for instance, psoriasis and eczema. Tuberculosis of the glands and the glandular involvements of Hodgkin's disease have at times done remarkably well under this treatment.

In no sense have X rays supplanted the operative treatment of malignant growths, but are used as a means of prophylaxis against recurrences after such treatment. There are few inoperable cases that can not be benefited, in being made more comfortable, by exposure to X rays. Pain, suppuration, and the mental condition are often greatly improved, and cases that have been set aside as hopeless have been cleared up amazingly.

Where the treatment by Roentgen rays has improved a case up to a certain point, and continued treatment seems to be without benefit, exposure to radium or to the ultra violet light often effects a cure.

The exhibit of apparatus by the instrument makers was a very large one, and a careful study of the types of machines represented convinced me that the apparatus selected for the Naval Medical School is the best on the market.

I took up the subject of wireless telegraphy coils and X rays during may stay in Philadelphia and discussed the feasibility of using these coils for the development of X rays. No one with whom I talked had heard of such a combination, but the representative of the Kny-Scheerer Company kindly offered to assist me in whatever experimental work I cared to undertake.

It was arranged to take a tube, multiple spark gap, fluoroscope, and the necessary connectors on board the battle ship *Maine*, then lying at the Brooklyn Navy-Yard. The connections with the wireless coils were made and X rays were satisfactorily developed, and all that was needed to complete the outfit were some X-ray plates.

Such an equipment should be in every fleet. It could be taken ashore to shore stations in remote parts, or could used in the field during operations on shore and give excellent results. The outfit can be packed in a small space and can be provided at little cost.

REPORT ON THE PROVISIONAL BRIGADE, UNITED STATES MARINES, ISTHMUS OF PANAMA.

By L. W. SPRATLING, *Surgeon, U. S. Navy.*

This report refers to all marines on duty in Panama and en route, from January 1 to February 15, 1904.

On December 28, 1903, 635 officers and enlisted men left League Island for Colon on the U. S. S. *Dixie*. This force included the brigadier-general commandant, his staff, 4 medical officers, and 14 men of the Navy Hospital Corps.

The *Dixie* arrived at Colon on January 3, and after looking thoroughly over the ground, Bas Obispo and Empire (Emperador) were selected as sites for regimental camps. One battalion from the

Prairie had been encamped at Bas Obispo since December 24, 1903. One company had been at Empire since December 8, and three companies since December 16, 1903.

During our stay on the *Dixie* the situation was fully discussed with all the medical officers on board, and the substance of General Order, No. 3, was given them as a guide in their work onshore.

GENERAL ORDER, NO. 3.

Pursuant to the recommendation of the chief surgeon, the following regulations are issued for the instruction of the command and will be complied with in every particular:

1. Only boiled, distilled, or sterilized water will used for drinking and for culinary purposes.
2. Raw vegetables will not be eaten.
3. Fruits and vegetables, bought locally, will be received in camp not oftener than twice daily and will be carefully inspected by a medical officer. Fruits will be washed in potable water before being eaten.
4. Only sterilized or canned milk will be used.
5. Latrines will be carefully policed morning and evening, contents being covered with fresh earth and sprinkled with 3 to 5 per cent solution of carbolic acid. Spitting, urinating, or committing other nuisances about the camp are prohibited. Urine receptacles may be placed conveniently about the camp for the night and thoroughly cleansed in the morning.
6. Garbage, swill, and other refuse will be collected in covered receptacles and burned or buried daily.
7. Everyone in the encampment will sleep under a mosquito net, even when there are apparently no mosquitoes, and will avoid as much as possible being bitten by mosquitoes.
8. All persons will observe the strictest cleanliness of person and clothing.
9. Two native laborers to each battalion will be employed under the supervision of the medical officers for sanitary policing. They will do the policing of the latrines, urinals, garbage receptacles, and grounds.

The necessity for correctness in diagnosis and thorough personal supervision of all sanitary measures was impressed upon all medical officers of the brigade.

Camp sites.—Bas Obispo and Empire are undoubtedly the best camp sites on the railroad line between Colon and Panama. Sites farther inland, off the line of traffic and away from the infected natives, would have been better, sanitarily, but there were no roads, and supply would have been very difficult. Above all, the military exigencies demanded these sites. Both are northward of Culebra, the highest point of the Isthmus, and are reached by the prevailing winds of the dry season. The steep hills, with clayey top soil, made drainage good. The water supply was abundant. Both sites had fair houses (which had been built by the canal company), and, as there could be found no objection to them, they were occupied and proved more comfortable than tents. On arrival of the first detachments sent here there were rank growths of tropical vegetation almost hiding the houses. By the time we arrived, however, the Empire site had been pretty well cleared, and in a short time all growth was cleared for a distance of from 100 feet to 100 yards or more from the camps. All tanks and possible breeding places for mosquitoes were either drained or oiled. Mosquitoes were found wherever there was convenient water.

The rotten woodwork of the houses was removed and sound wood put in. Before being occupied the houses were thoroughly cleaned and scrubbed with carbolic-acid solution. Natives did this work and the cutting away of brush. The houses are well built for the Tropics. They have stone foundations high enough to give full circulation of air, and are of frame construction. Roofs are of corrugated galvanized iron, and are in good condition. Most of the buildings are ceiled with wood, air spaces being left between the ceiling and roof.

Climate.—During the first part of our stay rains were frequent and heavy. During this period the atmosphere was near the point of saturation at all times. The night dews were remarkably heavy, the water running from the roofs in streams. These were not so heavy toward the last, when the dry season was fully established. The temperature ranged around 85° F. during the day, and 68° F. was noted one night. The wind blew with considerable regularity a fair breeze from north to northwest from about 8 a. m. to 5 p. m.

Water.—Distilled water was obtained from the ships at Colon in tank cars of the Panama Railroad Company. There were pipe lines from the river and tanks at both camps. The river water was not potable, but was used for laundry, bathing, etc., and after sterilization it was drunk with impunity. Each company was provided with a Forbes sterilizer, and they proved easy to manage, efficient, and convenient. Not a case of illness was attributed to the water.

Latrines.—The ditch latrines were well policed, were inoffensive, and, as far as known, entirely sanitary. The disposal of feces and urine, however, is the most difficult problem of camp sanitation. Inventors of crematories should be encouraged.

Mosquitoes.—In Colon and Panama, and in all native towns, mosquitoes were plentiful. At Bas Obispo and Empire they were not numerous enough to be annoying. Wherever water was allowed to stand the eggs and larvæ promptly appeared. On three occasions I found eggs in my water bucket in the morning. The natives set bowls under the eaves to catch rainwater and these bred mosquitoes. At Bas Obispo there was a stagnant pool in the Obispo cut of the canal and another in a gorge between the regimental camps and headquarters. Both pools were well stocked with fish and no mosquitoes were found in them. At Empire the basin of an old fountain hidden in the growth and the rain bowls were found alive with larvæ. Some were also found in the old gutters on the houses. There must have been good breeding places for them near the streams, although as stated above they were never a serious irritant.

Malaria.—The disease of most importance, in fact, the only one of importance, was a mild malaria. The percentage of sick for the brigade was 4.05. Malaria furnished 3.1 per cent of this. The daily average of patients was 55.7. Malaria gave 41.4 of these. There were in all 316 cases which are given on Form K, as follows: Febris remittens, 294; febris intermittens, 17; febris ephemera, 5. This includes 35 readmissions.

By regiments.

	First Regiment.			Second Regiment.		
	Admissions.	Readmissions.	Remaining from last quarter.	Admissions.	Readmissions.	Remaining from last quarter.
Febris remittens	132	10	2	124	25	1
Febris intermittens	5		1	10		1
Febris ephemera	1			4		
Total	138	10	3	138	25	2

The average time on the list for each case was six days; in the majority of cases the temperature was normal within four days.

The First Battalion went to Empire on December 16, except B Company, which went there on December 8. The first case of malaria in B Company was admitted on December 23, fifteen days after landing. The first case from the other three companies was on December 27, eleven days after landing. This battalion originally came from Culebra, P. R., and it is likely that some of the men had malaria in latent form. There is, however, nothing in the comparison of the sick lists of the two regiments to indicate it.

The Second Battalion came to the Isthmus on the *Dixie*. The first case of malaria was on January 15, eight days after landing.

The following is the percentage of the command who had malaria:

	Per cent.
Company A (arrived December 16, 1903)	8
Company B (arrived December 8, 1903)	18
Company C (arrived December 16, 1903)	27
Company D (arrived December 16, 1903)	26
Company E (arrived January 7, 1904)	16
Company F (arrived January 7, 1904)	8
Company G (arrived January 7, 1904)	17

It seems possible that B and G suffered infection by being to leeward of the native town. They were also quartered near the guardhouse, where there was difficulty in having nets used and where there were several cases of malaria.

Companies C, D, and E were on the lee side of the hill. A and F—one being an old and one a new company—were quartered on the crest of the hill, decidedly the best position in the encampment, and they show small percentages of malaria.

The First Battalion of the Second Regiment came to the Isthmus on the *Dixie* and landed on January 8, 1904.

The Second Battalion served on the *Prairie*. Company D, consisting of 92 men and officers, went on an expedition down the west coast of Panama to Real and Yovisa. They arrived at Real on December 18, left on December 24, and arrived at Bas Obispo on December 26. The medical officer of the company says:

> A maximum incubation period of two weeks gave 14 cases (of malaria), appearing from January 1 to January 4. Three cases appeared in December, with incubation periods of nine days or less, dating from the arrival at Real.

Finally, 72.63 per cent of this company had malaria. The next company in percentage was G, with 27.02 per cent. G's quarters were to leeward of D's quarters, distant about 500 yards, and on both sides of and near the hospital. Company B, whose quarters were very near to D's and to leeward, had 25 per cent. F was not directly to leeward of D and E, but close, and gave 16 per cent.

The First Battalion was separated from the Second by a gorge and was about 500 to 600 yards distant. Company A had 1 per cent, Company B 7 per cent, and Company C had 3 per cent of malarial cases. B Company was near native habitations.

There is no reason to believe that malaria is transmitted by any other means than the mosquito. Most of the medical officers report that they have not identified the *anopheles*. This genus is plentiful at Colon and Panama. One officer states that a male *anopheles* was hatched in water that he had collected from a bowl near a native's house at Empire. At Empire there is a considerable town of Jamaican negroes. Blood examinations have shown a large proportion of them to be infected with malaria. This result was also obtained at Bas Obispo. In this connection, a report of an expedition from Porto Bello through the country to Bas Obispo is interesting. On December 31, 1903, an officer with 9 marines and 1 hospital apprentice left Porto Bello, arriving in San Juan on February 5, 1904, and Bas Obispo on the 6th. From here they went by rail to Colon, thence to Porto Bello by ship. Up to January 27 six cases of malaria had developed. It is believed that the disease was contracted either on the night of December 31 or on January 5, both nights being spent in native towns.

About January 20 the admissions at the camps were increasing. Investigation by the medical officers showed that some of the men were without nets, some were not using them, some nets had holes in them, etc. Upon remedying this, the admissions soon began to decrease, and were still decreasing when the brigade was broken up.

At best the bed net does not give complete protection. If properly put on crossbars and allowed to fall to the floor it blows about, giving entrance to mosquitoes. The mosquitoes will bite through the mesh if the victim gets against the net, and it is hard to keep away from it in a narrow cot. Some of the nets were of poor quality, tearing easily and the threads easily slipped. I questioned men in the hospital, and almost invariably they had found mosquitoes under their nets in the morning, although they did not remember having been bitten by them. There was some unavoidable exposure of scouting parties. The head nets were impracticable for such work. Generally the behavior of the personnel was excellent, but native rum was cheap and easy to get, and there was some exposure to malarial infection in the native towns on account of it. All houses here should be thoroughly screened. We did screen the hospital with wire netting that was taken with the outfit.

The type of fever was generally a mild tertian, and yielded readily to treatment. From January 7 to February 10 only 5 cases of relapse or recurrence occurred in the First Regiment. The men of this regiment were required to take the after treatment by roll call. It was directed that a note should be made on the enlistment record of each man who had malaria. The medical officers were directed not to give prophylactic doses of quinine except under unusual circumstances. The disease was mild, yielded readily to treatment, and the men were left in such excellent condition after it that it was thought the administration of quinine would have a strong tendency to obscure diagnosis. Correctness of diagnosis was considered a very important matter. Yellow fever frequently obtains at Colon and Panama, and typhoid is also common to camp life.

Other diseases of the Isthmus.—There was a very suspicious case of fever at Colon when we arrived. The hospital data were too incomplete to be of much service in diagnosis. There were 2 deaths from yellow fever in San Tomas Hospital, Panama, on January 14. Dysentery was common on the Isthmus. There were a few cases of simple diarrhea and one of dysentery among the command. The exact origin of the dysentery was not determined up to February 15. Rheumatic affections (myalgia) furnished 12 cases. There was little opportunity for contracting venereal diseases.

Outfit.—Although only a week was available for getting together the medical outfit, it proved adequate and entirely satisfactory. The Bureau's instructions were that everything necessary should be furnished, and the Naval Laboratory gave it promptly.

It is gratifying to feel that there is no uncertainty about the work of the medical department.

PRELIMINARY REPORT ON THE U. S. NAVAL HOSPITAL SHIP RELIEF.

By WILLIAM C. BRAISTED, *Surgeon, U. S. Navy.*

The naval hospital ship *Relief* was originally built by the John Roach Shipbuilding Company, at Chester, Pa., in 1896, and was first used as a coastwise passenger and cargo steamer, running along the New England coast. At the breaking out of the Spanish-American war she was purchased by the Army, converted into a hospital ship, and remained in the Army service until November 13, 1902, when she was transferred to the Navy and placed out of commission at the Mare Island Navy-Yard. She is at present being overhauled and fitted for use as a hospital ship for the Navy at the United States navy-yard, Mare Island, Cal. When completed and commissioned, a detailed description will be forthcoming, but a brief synopsis of the salient features and equipment of the vessel for hospital purposes is made in advance.

The *Relief* is a schooner-rigged, steel steamer, with powerful triple expansion engines, a single screw, and a speed of from 16 to 17 knots per hour.

Her length over all is 314 feet; between perpendiculars, 290 feet; breadth, 46 feet, and mean draft 16 feet, giving her a free board of 12 feet from the water line to the main deck. Her displacement is 3,400 tons. her bunker capacity 707 tons, with an estimated steaming radius of 3,500 miles. The ship is provided with water-tight bulkheads.

The *Relief* will be fitted with a good distilling plant and with fresh-water tanks of a capacity of 23,351 gallons.

A large ice plant, with an ammonia ice machine, made by the De La Vergne Refrigerating Machine Company, of New York, is installed, and, as there are double engines, a generous supply of ice for all ordinary purposes should be easily obtained. It is thought that the ice capacity can be safely estimated at from 2 to 3 tons per diem.

In connection with the ice plant, and situated just forward on the deck below, are the cold-storage rooms, fitted with modern appliances for the refrigeration and preservation of perishable foods, meats, vegetables, etc. These compartments are so piped that one room, or all, can be used as desired. This plant is the same one which was used by the Army, but it has been entirely torn out, cleaned, scraped, and embedded anew, making the plant clean and sanitary.

Two dynamos, of 137 amperes and 110 volts each, will furnish electrical power for all purposes, i. e., for electric lights, heating purposes, such as electric stoves for warming food and heating water in the wards, the running of motors in the operating room for cauteries, electrical throat and nose appliances, the X-ray machine, and for general electrical massage, therapeutic purposes, etc. In addition to this the plant will be able to furnish the usual supply needed for the running of the ship proper outside of the hospital needs. An abundance of lights carefully wired and insulated have been installed, lighting up the whole ship, including the holds and storerooms. The wards are well lighted, and portable electric lamps will give light for bedside work when needed. The operating room will be especially provided with lamps, so that plenty of light overhead and from the sides can be obtained. Ample accommodations for the officers and crew are provided.

The idea in fitting up the *Relief* has been to take the space set aside for hospital purposes and equip and administer it largely on the basis of a naval hospital. The available hospital space will be divided into wards as follows: Forward, on the main deck, will be a large and airy ward, known as the convalescent ward, with accommodations for 56 patients. The air space of this ward is 267 cubic feet per man, and it is provided with single and double standing bunks, secured to the deck. Generous provision is made at the end of the ward for wash rooms, closets, and bathroom. A large linen room is also provided, with a small dressing room, and a stateroom with two bunks for the hospital steward and nurse on duty in the ward. Aft, on this main deck, is a large surgical ward containing standing bunks, some single and some convertible into either single or double bunks, as necessity may demand. Here are accommodations for 40 patients, with an air space of 312 cubic feet per man, and proper provision for bathing, washing, and closet accommodations; also linen closet and dressing room of good size, together with a room for the hospital steward and head nurse. A space forward on the starboard side, 16 by 12 feet, has been converted into an operating room, with adjoining sterilizing room, and an X-ray and electro-therapeutic room. This operating room has a vitreous tile floor, with sides and ceiling closed in with California redwood, carefully tongued and grooved with rounded concave and convex edges. The wooden surfaces will be white enameled and the room made perfectly aseptic. This operating room is fitted with the latest devices known in the way of surgical fittings and will be of sufficient size. All electric surgical devices, such as X-ray machine, electric cautery, electric surgical instruments, drills, saws, chisels, etc., have been generously provided. The electrical room, opening from the main operating room, provides all these aids at hand for immediate use.

The sterilizing room opens from the main operating room forward, and contains two large dressing sterilizers, one large instrument sterilizer, and hot and cold water sterilizers; also washstand for washing instruments and small enameled stand to hold hot instruments fresh from the sterilizer.

Aft, in this ward, is a large dressing room, which will also be used as an operating room in purulent cases, so that no infection may be taken into the aseptic general operating room.

The X-ray room, painted black and available for use as a dark room, contains the latest and largest (Kny-Scheerer) coil machine, with electrolytic and mercury interrupters, and a complete outfit for developing radiographs and a fine ordinary photographic outfit. The work of developing these pictures is provided for by a small dark room and developing chamber annexed to the X-ray room.

Electric cauteries, vibrators for massage, electrical devices for the treatment of diseases of the nose, throat, eye, and ear, and for the examination of these organs, have been installed. A fine ultra-violet ray is provided, and attached to the coil machine is a high-frequency apparatus and a transformer, so that electricity can be used for all therapeutic purposes.

The third ward is aft on the upper deck and is for the treatment of strictly medical cases. It is fitted up in the same way as the other wards, with linen closets, dressing room, closets, and bath. The air and ventilation make this an especially desirable ward. Ward No. 3 accommodates 52 patients, with an air space of 238 cubic feet per man.

Aft, on the hurricane deck, there has been constructed an infectious ward, which is completely screened, built of light frame on a hard maple flooring or deck space, and which will be especially useful in the Tropics. It will be covered by double canvas covers about 1 foot apart for protection from heat. There will be about 30 cots in this ward. It is mosquito and fly proof, and has in one corner a latrine, which is piped over the side of the ship independently of any other piping or plumbing, so that there is no possibility of contamination. This ward is well suited for the purpose. This completes the wards proper. A small ward of 12 bunks is fitted for warrant officers and is adjacent to their mess room. This makes the total capacity for treating the sick as follows:

	Cubic feet.	Cubic feet per man.	Patients.
Ward No. 1	14,985	267	56
Ward No. 2	12,504	312	40
Ward No. 3	12,381	238	52
Accommodations for—			
Infectious cases			30
Sick warrant officers			12
Sick commissioned officers			5
Total			195

A completely equipped dispensary is located amidships on the upper deck.

A neat dental room, with a mechanical workroom, is under construction, fitted out with the best dental outfit, and an experienced dentist will accompany the ship to attend to any dental work that may arise on the ship or in the fleet.

A large disinfecting chamber, with a convertible steam or formaldehyde disinfector, has been installed on the lower deck forward, and is capable of disinfecting large masses of material—clothing, bedding, mattresses, etc.

The laundry, on the lower deck, is adjacent to the disinfector, and consists of a large drying room with 12 drying racks, a large washing machine, with steam mangle, wringer, dirty clothes hampers, and a complete laundry outfit, capable of washing for 200 people.

On the lower deck, just abaft the disinfecting plant, 2 padded cells, which are large and airy, will give unusual accommodations for insane patients.

The ship is provided with 6 large lifeboats, of whaleboat rig, with 2 steam launches, both of which are especially fitted for the transportation of stretcher cases. Various devices for the transportation of the sick and injured are provided.

Finally, ample storerooms have been provided for an elaborate supply of drugs, dressings, and all the attendant features of a well-equipped hospital, including a cool storeroom for perishable stores.

An outfit for embalming purposes has been provided and will be in charge of an instructed hospital steward.

Oxygen and nitrous oxide are carried in especially strong tanks—the oxygen for restorative purposes and the nitrous-oxide gas for use in the Gwathway inhaler with ether or ether and chloroform.

The hospital stewards and head nurses are quartered in small rooms adjacent to their immediate work. The hospital apprentices have roomy accommodations on the lower deck aft, so arranged that they are in easy access to their wards, also to wash rooms and closets. Forty-five hospital apprentices can be accommodated, but the detail at time of commissioning is intended to cover only those necessary for the actual work at the time, and the force can be increased as the service demands.

Proposed detail of medical officers and hospital corps men.

Medical officers	4
Pharmacist	1
Hospital stewards	3
Hospital apprentices, first class	6
Hospital apprentices	18
Total	32

All medical officers and hospital stewards will be assigned to appropriate fields of instruction in the corps, and daily lectures, recitations, practical demonstrations, United States Navy Hospital Corps drill regulations, transportation of the sick and wounded, cooking, etc., will be given, the course of instruction being equal, if not superior, to that of any school of nursing.

One of the most important features in the care of the sick, and one which is most open to criticism, both in civil and military hospitals, is the feeding. It is hoped that cooks will be selected for the commissary department of undoubted worth and ability, and it will be desirable that at least one demonstration a week should be given to the hospital apprentices in the preparation and serving of food to the sick.

A small general store containing a few necessities for the sick is to be recommended, including such things as writing paper, soap, toilet articles, etc.

While the *Relief* can not be expected to represent so high a degree of perfection as might a ship especially designed and built for a hospital ship, it is hoped that she will be efficient, and, while fulfilling acceptably the position of such a ship, will give valuable information and experience that may enable the perfect hospital ship to be built at some future time.

The ship is high out of water, but careful tests made by naval constructors demonstrate her seaworthiness, and a rearrangement of ballast, with the addition of bilge keels, is thought to have materially increased her stability. In arranging the various departments, advantage had to be taken of preexisting conditions, which, for the sake of economy, could not be altered. Much of the finish of the steamer is of the usual ornate work, appropriate for a passenger steamer, but not in accordance with the typical smooth finish and rounded corners of the usual hospital structures. Some space is lost in angles and corners, which are also hard to keep clean.

REPORT ON CASES OF MALARIAL FEVER OCCURRING ON BOARD THE U. S. S. WYOMING.

By A. W. DUNBAR, *Surgeon, U. S. Navy.*

On December 13, 1903, 30 enlisted men and 1 officer were transferred by boats to El Real, Panama, where they landed and remained in camp until December 24.

The camp was located upon marshy ground near the town. A hospital steward was assigned to duty with the landing force, and carried the regular expeditionary outfit. The command was provided with mosquito bars, but from the reports not much use was made of them owing to the difficulty of adapting them to the hammocks, which were slung to avoid sleeping on the damp ground.

Mosquitoes are reported to have been very numerous. Distilled water was furnished from the ships.

On December 29, five days after their return, a case of malaria developed; then, on January 1, 2 more appeared, and these were followed by 10 others in the next three days. On January 4, it being evident that a large percentage, if not all, of the landing force, was infected, quinine was administered to all exposed. This was continued for a week or ten days. The next case admitted was on the 7th, and then 1 on the 8th. There was then an intermission until the 20th, when 8 cases were admitted in four days.

During January three expeditions consisting of an officer and a few men were dispatched up the Bayano River. Boat boxes were supplied, and instructions were given for the administration of quinine to the amount of 1 gm. daily, which were followed. Five cases followed these trips.

Since January 31, 1904, there has been no admission for malaria among the landing force. One case has occurred from exposure in Panama, and 2 from infection at Acapulco, Mexico. One case is probably a recurrence of an infection prior to enlistment, the patient having enlisted immediately after an attack of malarial fever. Only 2 cases can be ascribed to infection aboard ship. There have been 28 original admissions for malaria out of about 40 persons exposed on the various expeditions ashore, or 70 per cent. This percentage would possibly have been larger had it not been for the early administration of quinine, which probably aborted some mild cases. Nine cases have relapsed, 1 three times, 2 twice, and 6 once.

Clinically, aside from the usual symptoms, a severe supra- and postorbital neuralgia was frequent. In 4 cases the initial symptom was a choleraic diarrhea, resisting the usual treatment. In these cases, microscopical examination of the blood showing the plasmodium malariæ, quinine was administered and gave speedy relief.

Two cases of remittent fever became mildly delirious, and proved difficult to control by quinine.

In the majority of cases the fever was over 104° F., in many it was above 105° F., and in 4 it reached 106.5° F., requiring energetic antipyretic treatment by cold sponging and packs.

Blood examination was made in 40 cases and the parasite was found in 28. In most of the cases where it was not found quinine had recently been administered.

The æstivo-autumnal organism was found in 7 cases, the remainder being of the tertian type.

The deleterious effect of exercise under a hot sun has been shown by an outbreak of the disease in those already infected when the ship has been to Chame Bay for target practice and during coaling, at which times the men have been usually exposed to the sun.

The two cases apparently originating on board are traceable to the presence of the *anopheles*, which has, upon two occasions been found aboard ship, probably coming from the neighboring islands near which the ship was anchored.

The liability of infection from Panama by aerial transmission of mosquitoes is very small, as the distance is over 3½ miles, and during much of the year the prevailing winds are from seaward.

There is greater danger from the ships which arrive from southern ports, notably Guayaquil. These ships anchor in the lee of the islands, and as it has been shown that ships arriving at the Gulf Quarantine Station, over seventeen days at sea, had the *stegomyia* and *anopheles* in 3½ per cent of cases, the possibility of infection by yellow and malarial fevers from these steamers is not unlikely.

Mosquitoes are very numerous in Panama, both *stegomyia* and *anopheles* pheles being present in large numbers.

The disease has proved difficult to eradicate. After thorougly cinchonizing the patient, the blood being apparently free from the parasite, he has been discharged to duty and directed to report for further treatment in reduced doses, but the recurrence of the chills and fever shows the necessity of continuing the systematic administration of quinine in full doses if recovery is to result in this climate.

EXTRACTS FROM SANITARY REPORT ON SECOND REGIMENT, PANAMA PROVISIONAL BRIGADE, U. S. MARINE CORPS.

By D. N. Carpenter, *Surgeon, U. S. Navy.*

The camp site at Bas Obispo has proved to be admirably suited for its present purpose. Situated upon several small hills sloping toward the Obispo River, with the canal cut behind, it is well drained and exposed to all breezes. The soil is principally a reddish clay marl with outcroppings of a coarse conglomerate rock, and a black, soft, argillaceous stratum containing limestone in crystalline form. The prevailing winds have been from the northwest. The average temperature during the day has been from 80° to 85° F., and at night 68° to 75° F. Early in January the present dry season began, with occasional tropical showers. The heavy night mists which fill the valleys like a dense cloud are less common now. These are sufficient to wet all clothes and necessitate a blanket to prevent chilling. The direct heat of the sun at midday is intense, and not much work can be accomplished during these hours. The men's quarters are in the wooden houses erected by the canal company. These have galvanized-iron roofs, which are an efficient protection during the rainy season. They are built on stone pillars, 2 to 4 feet from the ground, allowing a free admission of sunlight and circulation of air to keep dry the damp soil beneath. They have numerous windows, doors, and broad verandas, and no overcrowding has occurred. Before being occupied they were scrubbed with strong carbolic solution, the old water-closets removed, drains and waterways cleaned and disinfected with lime. Several houses have been whitewashed. A few dirt roads have been improved with broken rock.

The usual field latrines are in use and are dug and cared for by natives hired for this purpose. They are limed at first and afterwards disinfected daily with carbolic solution. The seats and poles are also scrubbed.

The garbage sinks are dug at a convenient distance from the company kitchen, but it seems advisable to construct temporary incinerators for each battalion. The natives living in camp remove a part of this refuse for feeding their pigs.

For drinking purposes water is brought from the ships at Colon in tank cars which are sterilized by steam before filling. The Obispo River furnishes a liberal supply for cooking and bathing purposes, and the men have been able to take daily baths, which undoubtedly has prevented skin diseases appearing to any great extent. This river water has also been used for drinking purposes after straining to remove sediment and then passing it through the Waterhouse-Forbes sterilizer. For washing dishes and cooking it is boiled. After a rain a good supply of soft water is obtainable. The water from the springs has also been used after boiling. No disease has been treated which could be traced to the water supply. A partial analysis of the Obispo River water shows that it contains excessive chlorides and nitrites, sufficient to condemn it. It is contaminated by the native houses along its course, and is used by them for bathing and washing clothes. It is unusually hard, being fed by springs running through the limestone rock, and it carries a constant heavy sediment of vegetable débris and clay particles. The spring near the railroad runs into the river and was found to contain excessive chlorides and nitrites, probably owing to soil pollution from the camp through the ravine. One spring, viz, that in the rear of Company F's quarters, showed no contamination.

The food for the men has been the regular navy ration, which has been prepared in a cleanly manner at each company kitchen. An issue of fresh meat every other day and a good baker's bread daily was obtained. The native fruits, comprising oranges, bananas, limes, lemons, and an occasional pineapple are sold twice a day through the camp, after being inspected, and make a valuable addition to the dietary. There have been no cases of gastro-enteric troubles from the food.

The men have been supplied with cots and nets, which have undoubtedly helped to secure additional protection from mosquitoes. In this regard it may be mentioned that only the finest meshed net should be used, for otherwise the insects enter. Apparently these pests, although constantly present, have not annoyed the men, and a strict surveillance and an order was necessary to make them use nets. A length sufficient to sweep the floor is important to prevent the net blowing about during the night. The greatest pest, especially at first when cleaning the camp site of undergrowth, has been a small voracious midge, which, after biting, leaves an oozing puncture that subsequently swells, becomes indurated, and itches intensely when one is warm at night or perspires. Uncontrolled scratching tends to ulceration. Wood ticks and chiggers have also bitten the men. The egg sac of the chigger is first noticed as a small blister with reddish areola, like a bruise or paronychia. Opening the sac releases the tiny eggs and cauterization with pure carbolic results in a satisfactory cure.

Drills have been light and no hard work has been done during the heat of the day. Although many men in the regiment are recruits, yet their personal cleanliness has been good. Alcoholism and venereal disease have rarely been seen. Scouting expeditions have been sent out from time to time, and head nets have been used, together with the administration of prophylactic doses of quinine. A hospital apprentice accompanied each detail.

As the camp is divided by hills, it was deemed expedient to provide two hospitals, one for each battalion. The house selected for the Second Battalion has two large and three small wards, containing in all 15 beds. An additional ward of 18 beds is made by three hospital tents placed at one side of the hospital. A dispensary, laboratory, medical storeroom, shower bath, tool room, and diet kitchen for both hospitals (which is also used as a mess room for the hospital apprentices), are located in this building. Close by is a small shack where the apprentices have their rooms. A small tent for isolation purposes is near by, and a latrine is conveniently situated.

The house selected for the first battalion at Haut Obispo contains a single large ward of 15 beds, a dispensary, and an operating room. The acetylene illuminating outfit is established here, and furnishes one light for the dispensary and a circle of brilliant lights over the operating table. This outfit has been found easy to handle, clean, and satisfactory. A small isolation tent is situated close to hand, and the latrine is back on the hillside. Like the other buildings, the hospitals were scrubbed before occupation, and all rotten woodwork removed, after which they were whitewashed.

The First Battalion arrived in camp January 8, 1904, from the U. S. S. *Dixie*, and this hospital was then occupied.

Living on the outskirts of the camp are many families of Jamaican negroes. The sanitation of their houses leaves much to be desired. The only breeding places for mosquitoes were found in the rain barrels used by them. It would be better if these natives were well out of proximity to the camp, as they undoubtedly furnish a source of infection by malaria. Many natives from the surrounding villages have been treated, and numerous cases of malarial fever, with the parasite in the blood, have been found. The diseases so far seen among them have included 1 case of leprosy, 2 of elephantiasis, 3 cases of chronic nephritis, 1 of cardiac disease, 1 of gall stones, several cases of rheumatism, particularly muscular rheumatism, and cases of bronchitis, diarrhea, constipation, dysentery, whooping cough, tonsillitis, chronic ulcers, cataracts, chronic cystitis (evidently from enlarged prostate), muscular cramps (similar to those seen in coal passers on shipboard), and a peripheral neuritis, which may be due to the daily consumption of native rum. Beriberi has been sought for, but not found. Several cases of indurated legs and feet from neglected chigger infection have been seen, which produce an appearance not unlike Madura foot, or elephantiasis. Scrubbing with green soap to open the sinuses and applying ichthyol and ungt. hydrarg. have produced a cure in two cases and marked improvement in a third case. The chigger eggs were found in the pus from one case.

Malarial fever.—The admissions for malarial fever from January 1 until February 8, 1904, number 136 cases. A study of the cases by companies suggests that the location of quarters in proximity to native houses leads to greater infection. Company D of the Second Battalion and Company B of the First Battalion have had the greatest number. The excessive number of cases from Company D is partially explained by infection while on an expedition to Real and Yavisa. Ninety-two men and officers were sent. They arrived at Real on December 18 and left there December 24, arriving here December 26. A maximum incubation period of two weeks gave 14 cases, appearing from January 1 to January 4. Three cases appeared in December with an incubation period of nine days or less, dating from the arrival at Real. The average period of incubation might be figured in these cases as ten to twelve days. The men were constantly in mud and water, and although provided with nets had little opportunity to use them. Subtracting those 14 cases from the total of 69 in Company D, there are yet 55 cases of infection to be explained. Some of these may have been infected at Real or Yavisa, but undoubtedly many were infected here at this camp. The company has worked hard in the rain and sun, and these conditions may have lowered their resistance. Their quarters were the poorest of all at first, although at present they are the best.

It is interesting to note that the officer in command and his orderly, while on the Yavisa expedition, took daily doses of quinine, and have so far escaped the fever. It is difficult to judge the incubation period of the other cases. The first fever appearing in the Second Battalion occurred seven days after their arrival in camp; that in the First Battalion occurred eleven days after their arrival. One case noticed that he was badly bitten eight days before the onset of his fever. Nearly every case states that he has faithfully used his net, but some did not do so, either at their quarters or on guard. Several cases appeared seven to ten days after they had overstayed their leave in adjacent villages. The etiological factor is undoubtedly the mosquito for all these cases. The common mosquito found here is a black, quick-biting insect with clubbed palpi, less than half the length of the proboscis. Its black legs are white banded. *Culex* abound and have been the only mosquitos found as larvæ, pupæ, or eggs in the rain barrels.

A history of previous attacks prior to their duty here was obtained from the men in seven cases. The majority were first attacks in recruits, although there were 21 readmissions, two of whom had three attacks. The type of fever has been a bilious, remittent fever with a tertian tendency or even an actual tertian fever. Some had subtertian charts, and quotidian and even quartan charts were seen. Many had a fever with a fall by lysis in from four to six days; others ran an irregular course. The 135 cases were classified as follows: Febris intermittens, 9; febris ephemera, 3; febris remittens, 124. The duration of time on the list was four days for 15 cases, five days for 26 cases, six days for 18 cases, and seven days for 11 cases. The rest are scattered from three to twenty days, with one case of cachexia remaining on the list since his admission January 3.

A classification of symptoms is not attempted. Nearly all gave a history of a gradual onset of two to three days; a few, five to seven days; while some were well up to the time of their admission. Headache, backache, myalgia, chilly sensations or chill, anorexia, and vomiting were the common symptoms. Constipation was usual, but cramps, colic, and diarrhea were seen. Intense pain through the eyeballs, vertigo, cough and sore throat, and pain in the back of the neck were complained of in some cases. Physical examination showed one class of cases to have the face flushed or dusky, eyes congested and sclerotics muddy; tongue swollen, with a whitish or brownish-white coat, or even clean; breath heavy or foul; pulse full and bounding, or dicrotic; skin hot and dry; and an average initial fever of 102 to 104° F. One case was admitted in delirium, and another case developed a mild mania of exhaustion when the temperature became normal; both of these recovered. The type of case with prostration showed skin wet, pale, and clammy, and pulse rapid and weak. Several cases with high fever were sleepy and stupid, being roused with difficulty. One case was of the algid type, temperature subnormal, pulse weak and rapid, lips and face cyanotic; later the fever began. In some cases the spleen could be felt without difficulty, but in the majority of cases one was not sure of it, although pain and tenderness on deep pressure were obtained. One case had a blotchy erythema with high fever; another a general urticaria; and herpes labialis was often seen. A decided icteric tint to the skin and sclerotics was noticed in 4 cases, one of which had bile in the urine. One case, with a history of previous attacks, vomited and passed blood in the stools. One case complained of intense pain in the knee-joints, but the parasite was present and the absence of eruption eliminated the diagnosis of denguis.

Definite chills were rare in the beginning of cases, but after a few days—especially in those which received acetanilid and salol, until the parasite was found—a good chill would occur. Cases of relapse would begin with a definite chill. Some of the cases with mild symptoms may have been influenced by quinine taken by the patient before entrance, as quinine was in demand in camp. This factor has also to be considered in the negative findings of blood examinations. Several cases, although taking daily doses of quinine, came down with the fever, and the parasite was found. Cases of relapse also occurred in spite of daily doses or systematic weekly courses of quinine. The parasite of this tropical tertian malarial fever is very persistent.

The differential diagnosis necessitates the consideration of possibly yellow fever, denguis, thermic fever, or a fever yet unclassified. No doubt, in the presence of typical cases of yellow fever, some of these cases might have been suspicious, but it seems reasonable to reject such a diagnosis when no such cases have occurred, and the malarial parasite was found in nearly every case. That another fever might have been superimposed upon a malarial infection can not be denied, but from the similarity in symptoms of all the cases we seem justified to call them malarial fever. Only one case simulated denguis, viz. that mentioned with some pain in the kneejoints. The symptoms and duration of the disease, with relapses, exclude thermic fever. Yellow fever was kept constantly in mind, as the camp was situated where the disease had prevailed. A few charts might well have been taken for this disease, and the urine contained albumen in 2 cases. These cases serve to show how easily an error in diagnosis might be made during an epidemic of yellow fever in a malarious country.

The treatment presents nothing new. Acetanilid was given until the parasite was found, but the fever was not markedly influenced until quinine was given. The usual calomel and soda with a mild saline was generally necessary, and, contrary to what is generally stated, we found the small doses of 1 to 2 grains to be perfectly efficacious, as in a northern climate. Quinine was given in 5 to 10 grain doses up to not more than 30 grains daily. Cold sponging, ice caps, liquid diet, and rest in bed until the temperature was normal completed the routine treatment.

No complications occurred, nor did any patient die. Relapses generally followed exposure to sun or getting wet, although they occurred also from a "clear sky" and when the man was faithfully taking quinine.

The urine of 60 cases was examined; 45 of these had a specific gravity below 1.020 (from 1.009 to 1.020). This was rather remarkable considering the high, or even reddish, color of most of the specimens, and evidently the urobilin was out of proportion to the total solids, possibly from the blood destruction. Albumen, as a decided trace, was found in two cases, and bile in one.

The blood in 106 of the cases considered was examined one or more times. Five cases were negative, even after several examinations; 12 cases were negative at first, but positive later. The parasite found in the majority of cases was the tertian organism; crescents were seen in 5 cases, and in 2 cases the delicate rings of the aestiro-autumnal were seen.

The common types were coarse tertian or irregular forms. Adults were also present. Fresh blood was most satisfactory, and the rapidly moving hyaline form or adults with active pigment granules settled the diagnosis. Stained specimens were made with Loeffler's blue after a short hardening in alcohol and ether, and this method was found to be the quickest and most accurate at our disposal for correct diagnosis. Wright's stain gave fairly good results, but it was unreliable, owing probably to the inability to obtain a pure methyl alcohol. Ehrlich's stain, followed by a saturated solution of methyl blue (aqueous), brought out the protoplasm of the crescents in a beautiful manner. Deterioration of the stains occurred from concentration by evaporation, and a fresh solution of the alcohol and ether mixture was necessary to obtain good results.

Failure to find the parasite was noted in mild cases of first attack. Those of high fever or decided intermissions offered no difficulties. Making due allowance for an average experience in recognition of malarial parasites, it is believed that it is rather difficult to find the organism in many cases of remittent fever during the first three days.

The following differential blood count is an index of the few cases examined: Polymorphonuclear neutrophiles, 56.7 per cent; large mononuclear, 22.8 per cent; small mononuclear, 9.3 per cent; transitional, 11 per cent; eosinophiles, none. The case of cachexia gave a low blood count, viz, reds = 1,213,600; whites = 1,488; hæmoglobin (Tallquist) = 50 to 60 per cent. One case on the fifth day of his first attack gave reds = 3,591,040; whites = 4,020; hæmoglobin (Tallquist) = 70 per cent. Three cases examined during convalescence gave a red count of over 6,000,000, with a hæmoglobin (Tallquist) of 80 to 90 per cent, pointing to an overproduction of red corpuscles to make up for those destroyed.

A series of tests by the Tallquist hæmoglobinometer was made to determine if this could be used to indicate the blood destruction, for it has been found that the decrease in hæmoglobin is proportionate to the loss of red corpuscles. The results were as follows: 15 men, varying from two to eight days sick, gave the hæmoglobin estimation in 3 cases 80 per cent and in 12 cases 90 per cent.

The small laboratory equipped with the outfit furnished by the Bureau of Medicine and Surgery was established on January 11. The systematic examinations made since then have required much time in addition to other duties, but the feeling of surety in diagnosis has well repaid the extra work, besides throwing some light, we hope, upon that indefinite, much-maligned Chagres fever.

REPORT ON DIPHTHERIA AT THE UNITED STATES NAVAL HOSPITAL, PENSACOLA, FLA.

By William H. Bucher, *Surgeon, U. S. Navy.*

On the 30th of December the U. S. S. *Buffalo* arrived at this port and transferred to this hospital 5 cases of diphtheria, and from the time of her arrival until departure (January 14, 1903) there were 40 cases of the above-named disease transferred. Many of the cases on admission appeared as tonsillitis, but in a few days the characteristic symptoms of diphtheria developed, with the organism in the throat. It was possible to find all degrees of severity in this lot of patients, from the one who was feeling practically well, with slight angina and a low temperature of 99°, to the one who was utterly prostrated, with a throat nearly closed with membrane.

In all cases antitoxin was administered. The first dose was usually 1,000 to 2,000 units, according to the severity of the case, the dose being repeated the following day if no manifest improvement was noted. In some cases 7,000 units were employed.

There were 5 cases of relapse which responded to the antitoxin quite as well as in the original attack.

Twice a week, following convalescence, the throats of all infected were examined for the diphtheria organism, and in all cases they persisted long after the patients had been up and around. In 9 cases the germs remained in the throats for fifty days after the patients had left their beds. With the exception of 10 patients who were sent to duty on account of the crowded condition of the hospital, the rest were kept isolated within the hospital grounds until there was no evidence of the germ in the pharyngeal and tonsillar secretions. No new cases of infection occurred among the patients at the hospital except one, which was a hospital apprentice who refused to take the immunizing dose of antitoxin. There were no deaths and no abscesses or deleterious effects following the injection of antitoxin.

It is rather remarkable that the results should have been so favorable, for the hospital was overcrowed and the best hygienic conditions were not at hand. Notwithstanding these disadvantages, antitoxin was most efficacious, and all the good results obtained are attributable to its use.

Six cases developed facial paralysis and one case sensory paralysis of the lower extremities.

REPORT ON THE PERMANENT GARRISON OF MARINES, CAMP ROOSEVELT, CULEBRA, U. S. W. I.

By EDGAR THOMPSON, *Surgeon, U. S. Navy.*

The command has been living in tents for the past two years, and the health of all the men has been good excepting a short period in the first quarter of this year, when the work and labor imposed on them was excessive.

In a few days the old camp site will be abandoned, and the command will remove to barracks which are now being constructed in the town. Here the men on the whole will be more comfortably situated. The buildings are located, however, in close proximity to the native residents, which will be a great disadvantage on account of their moral and sanitary condition, and on account of their eager and unlawful traffic in alcoholic liquors. This question is a serious one from a sanitary standpoint. With barely an exception the entire population of the island is engaged in the unlawful sale of rum to this command and to the men of the ships. This rum is of a most vile composition, and does great injury to those who drink it. It has proved an impossible task to suppress its sale on account of the indefinite relations existing between the civil and military authorities. The condition is deplorable, and will drift from bad to worse until some radical change is made in the method of administering justice.

The commissary of this camp is maintained entirely from San Juan. The island is very unproductive and barely subsists the inhabitants. The water for drinking and other purposes is also brought from a distance, there being no natural source on the island.

The natural sanitary conditions of the island are bad, and the percentage of sick would be much greater if the men of this command were not alive to the necessity of careful habits. The mosquitoes are a real pest all over the island. One great source is found in the many drinking wells for cattle and other animals. These wells are dug in the valleys, and while the water is salty the mosquitoes manage to develop in them. These wells can not be oiled or filled. During the rainy season I have also found mosquito larvæ in the water that collects inside the leaves of several tropical plants. Where these leaves join the stalk there is a depression which holds water long enough for the eggs to hatch into larvæ and develop into adult insects.

Malaria is very prevalent among the natives. Every one is a center for the further spread of the disease. It is the only disease of importance that has attacked the men, and a number have been surveyed during the year and sent from the island on account of it.

There are several cases of filarial infection among the natives.

REPORT ON THE UNITED STATES MARINE BATTALION, CAMP ELLIOTT, EMPIRE, PANAMA.

By RALPH T. ORVIS, *Passed Assistant Surgeon, U. S. Navy.*

During the past year this battalion, consisting of three companies of about 95 men each and 13 officers, including the medical officer, was in camp and on board ship, as follows: Camp Dewey, Culebra, January 1 to February 2; on board *Panther*, February 2 to February 23; Camp Dewey, Culebra, February 23 to March 15; on board *Panther*, March 15 to May 5; Camp Dewey, Culebra, May 5 to July 15; on board *Panther*, July 15 to October 23; on board *Dixie*, October 23 to December 8; and Camp Elliott, Panama, December 8 to December 31.

The health of the battalion has been variable. While in camp at Culebra as high as 14 per cent were on the sick list at one time, but on board ship their health record was very good. I attribute this large percentage of sick to the work which the marines performed while ashore in camp—such as digging a canal, where they were in water up to their waist, digging magazines, and mounting guns. During this work they were exposed to the tropical sun. This place was infested with several species of mosquitoes, which were suspected of being the principal cause for the large number of malarial cases, although everyone was supplied with a mosquito net and forced to use it.

We had in camp an average force of about 275 men, and about a half a mile away, in the harbor, was the *Panther*, with about the same complement. We were rationed by the *Panther* and received our water supply from the *Aretheusa*, so that we were under the same condition, as regards food and water supply, as the *Panther*. Notwithstanding this, the average sick list of the *Panther* was about 1 per cent, while our average for the quarter in camp was over 6 per cent. Our sick list always decreased when we embarked on board ship, and in a short time compared very favorably with the sick list of the ship on which we were quartered.

The battalion was quartered at Camp Dewey, which was situated at the most easterly part of Great Harbor, where there was a fine breeze blowing constantly and which was the best place on the island for a camp site. Good drainage was secured, all weeds were cut, grass removed and burnt, and the place policed daily. The latrines consisted of empty flour barrels set halfway in the ground, with a seat over them, and were about 100 feet to the lee of the kitchens, which were at the extreme end of the company streets. They were all under cover to protect them from the weather, and the barrels were removed and burned every other day, as was also all refuse and kitchen garbage from the camp. Each company had its company mess with its cooks and mess outfit, but all received the same ration from the *Panther*. A 4-tent hospital was established, 1 being used as a dispensary and operating room and the other 3 as wards. By crowding, 8 cots could be placed in 1 tent.

Aside from malaria and venereal diseases, rheumatism and accidents helped to make up the large percentage of sick. When the battalion first went ashore they were not supplied with lumber for the tent floors. Later this was received and floors made. On July 15 the battalion was ordered to the *Panther* and proceeded to the coast of Maine, where they went through the summer maneuvers. The health of the battalion improved greatly during this time.

Camp Elliott, at Empire, Panama, is about 35 miles from Colon on the Panama Railroad. The health of the battalion on board ship at Colon was very good, but after three weeks at Empire a large number of malarial cases presented themselves for treatment, these cases all being of the remittent type. It is impossible to keep the men from getting wet during the rainy season. Aside from the mosquitoes there are a large number of ants, gnats, and other insects, which cause much annoyance and are probably a menace to the health of the personnel here. Many of the men have had to receive treatment for insect bites.

The houses in which the men are quartered belong to the Panama Canal Company and were formerly occupied by the officials of that company, but have been vacant for about three years. They were very dirty and badly in need of repairs when we first arrived. The undergrowth about the buildings was very thick. This was cut down by native laborers, the buildings cleaned and scrubbed with soap and water and washed down with a 5-per-cent solution of carbolic acid before they were occupied, and they are now being whitewashed. The repair work on the buildings was done by the marines.

The houses are situated on a hill; some on the crest, others on the side. The water supply for drinking purposes is brought here in tank cars, which have been thoroughly cleaned by steam, from the ships at Colon. All water used for cooking purposes and for the washing of dishes and of kitchen utensils is sterilized by Forbes sterilizers, of which we have four. The water used for washing and scrubbing is either rain water collected from the roofs of the buildings in water cans supplied by the quartermaster's department, or water from a small stream, which is pumped to three large tanks on top of the hill. Formerly there was a complete water system from these tanks to every house, but the pipes have become broken or rusted, so that it is impossible to use them at the present time. Latrines have been dug for each company about 2½ feet wide, 12 feet long, and 8 feet deep, smaller ones being used for officers. Lime and carbolic acid have been used plentifully over these latrines. During rainy weather they fill rapidly and overflow. The soil is clay and will not absorb water.

The building selected for a hospital is a frame structure situated on the crest of a hill and has an upper and a lower floor, with a porch around it on three sides. On the lower floor 3 rooms are used for wards; 1 for a dispensary, office, and sleeping quarters for the hospital steward and apprentice, and 1 is used for an operating and dressing room. There is running water on this floor, and a shower bath, which has been repaired and placed in commission. There are 4 rooms on the upper floor. This building will accommodate 20 patients comfortably and 35 by crowding. There are 2 water-closets in the building—1 for the patients and hospital corps and the other for officers' use. They are on the plan of closed stools, and are disinfected, emptied, and cleaned daily by natives employed for that purpose.

Each patient when admitted to the sick list has his cot, blanket, and mosquito net brought to the hospital. The men of this battalion have all received instructions in first aid, and have been cautioned about drinking water and eating food other than that furnished to the command.

Before concluding it is well to mention the insanitary condition that prevails in and about this locality. The residents here are principally

Panamanians, Jamaican, and Saint Lucian negroes, Chinese, and a few French and Italians. They know nothing about sanitation. Their houses are built on the ground, with no ventilation beneath. The privy, or water-closet, consists of a hole in the flooring of their house, where urine, fecal matter, and other refuse is dumped. The water used by these people for all purposes is rain water, collected from the roofs of their houses, and during the dry season from dirty and polluted streams. It is collected in barrels and is full of larvæ and pupæ.

From November 5 (the day we arrived at Colon) to January 1 we have only had two days without rain. The inhabitants have frequently applied for medical treatment, their principal ailments being fevers, rheumatism, ulcers, and elephantiasis.

REPORT ON AN ELECTRICALLY HEATED INCUBATOR FOR USE ON BOARD SHIP.

By F. M. FURLONG, *Passed Assistant Surgeon, U. S. Navy.*

In the annual report of the Surgeon-General for 1902, Surg. D. N. Carpenter, U. S. Navy, describes a clinical laboratory that he had established on the U. S. S. *Illinois.* In this account Doctor Carpenter mentions a bacteriological incubator heated by means of electricity and regulated by a rheostat.

In April, 1903, Surg. H. G. Beyer, U. S. Navy, improvised an incubator on the U. S. S. *Prairie*, at Norfolk, Va. This apparatus was made out of a tin box, heated by an electric stove. This was placed in a vessel, and the heat was regulated by a certain amount of water which had to be replenished about every two hours or so. This little apparatus worked very well and was extremely useful. At that time there was an epidemic of diphtheria at Norfolk on the receiving ship *Franklin*, which was near the *Prairie*, and as suspicious throat cases developed on the latter ship, cultures were made, incubated in Doctor Beyer's apparatus, examined microscopically, and a diagnosis made without sending to a laboratory ashore.

The experience of these officers has impressed me with the great value of clinical laboratories on board ship, and to my mind such a small laboratory would be a great help in diagnosis to naval medical officers. In a number of foreign ports where our ships go there are no facilities for bacteriological work when wanted, and, in view of this, I would recommend to the Bureau the advisability of placing incubators on some of our vessels, especially flagships. A great many supplies for maintaining a ship's laboratory are already in the Medical Department's allowance and others are easily obtainable. From my own experience, there is not much more difficulty in preparing culture media afloat than ashore.

As gas can not be obtained for heating incubators aboard ship, this has to be done by electricity, and the great difficulty is to regulate an electrically heated incubator.

I would like to invite the Bureau's attention to an apparatus which I have recently devised and used, of which the following is a description:

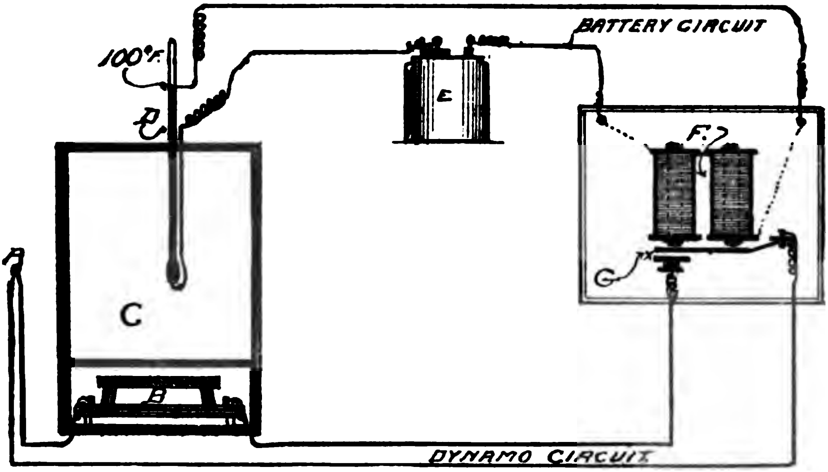
A thermostat closing a circuit at 100° F., a gravity battery, and a small electro-magnet are required.

From the accompanying drawing it will be seen that there are two circuits—a dynamo circuit and a battery circuit. As the incubator C is heated the mercurial column rises in the thermometer, and on reaching 100° closes the battery circuit; this energizes the electro-magnet F, which lifts the armature, breaking the dynamo circuit at G, which shuts off the heat of the electric stove B.

As the mercurial column falls in the thermometer the battery circuit is broken, causing the armature of the electro-magnet to fall by its own weight, which closes the dynamo circuit, heating the stove again.

This apparatus is accurate, is much better than a rheostat, needs no attention, and is especially adapted for ship use.

This apparatus can be made for less than $3, which is far cheaper than a rheostat.



REPORT ON CAMP HUNTINGTON, GUANTANAMO, CUBA.

By F. M. Furlong, *Passed Assistant Surgeon, U. S. Navy.*

The battalion which occupied this camp was originally composed of 450 officers and men, and was formed from two battalions of the Second Regiment of Marines of the late Panama Marine Brigade. They had been on duty at Bas Obispo, Panama, for two months, leaving there February 14 and arriving at Guantanamo Bay on February 20, 1904.

The situation of the camp was on McCalla Hill, located near the eastern entrance of Guantanamo Bay, and had been previously occupied by marines during the Spanish-American war. This hill is about 100 feet high and is approached by a very steep road. The summit of the hill is a plateau, on which the camp was laid out in the following manner: The headquarters, tents of commanding and staff officers, and officers' mess tent were near the brow of the hill; beyond these were the tents of four companies, laid out in eight rows, two rows to a company, with a street 25 feet wide for each company. The company officers occupied tents at the head of their respective companies, but separated by a wide street. In the extreme rear of the camp was the hospital, consisting of five hospital tents joined end to end, which accommodated 30 patients comfortably. The hospital steward, 2 hospital apprentices, and dispensary were located in three wall tents near the hospital.

The equipment of the camp was a limited field equipment, and it is thought that the health and comfort of the battalion would have been much better if lumber, wagons, garbage carts, mules, pumps, piping, etc., had been supplied.

When this camp was established nothing was known as to our length of stay, but it was understood that it was to be temporary, for the purposes of recuperating after service on the Isthmus of Panama.

In view of this, ordinary sinks dug in the ground were used for the disposal of garbage refuse and excrement, but this was extremely unsatisfactory and insanitary and was a constant menace to health. The character of the ground of the space alloted for the sinks, a foot or so beneath the surface, was coral and sandstone, and sinks could only be dug with the hardest kind of labor. The trenches were consequently shallow and were filled up in a very short time, which resulted in a great many filled-in sinks, resembling a graveyard.

As time went on it was found that these temporary expedients would not suffice, and measures had to be taken for a permanent occupation. The first thing necessary was to dispose of the large amount of garbage and a long trail was cut through the brush to a bluff overlooking the sea, where the garbage was transported and thrown into the sea. Some lumber having been obtained, six semi-permanent latrines were constructed. These were sheds containing boxed-in seats fitted with covers which closed after using, and they were carefully policed by a non-commissioned officer and a squad of men, who used crude carbolic acid and lime liberally. Though this was not ideal, it was satisfactory with our limited facilities.

As a result of transporting the garbage refuse to the sea, and the use of the boxed-in sinks, a great improvement resulted; the hard labor involved in digging sinks in coral rock was avoided, flies became less numerous on account of not having breeding places, and odors were prevented.

One of the greatest problems of the camp was the water supply, as there was none in the limits of the naval station; our supply was obtained from a water barge anchored off the landing place. The source of this water was from a number of places and it was only used for drinking after being sterilized. The whole water allowance had to be transported in barrels up to the camp, requiring great labor. It is obvious that, with such a condition existing, the minimum amount of water was used for cleanliness.

The kitchen tents were placed about halfway up the hill, on a level place on the side. The object of this was to save labor transporting stores and to have them at a distance from the sinks. There were no messing arrangements for the men, until just before our departure for the United States, when crude arrangements were made.

The battalion had hardly left the Isthmus of Panama, when a number of men were seized with malarial fever, and on the day after our landing there were over 20 cases. This affection lasted throughout our whole stay at Guantanamo, the total number of cases being 111, of which 30 cases were recurrent. Another affection which developed after our arrival, and which caused a great deal of concern, was acute dysentery, there being a total of 13 cases. There were also numerous cases of acute diarrhea, which continued during the whole of our stay. One man, who was transferred to the U. S. S. *Prairie*, developed typhoid fever about two weeks after his arrival on that vessel, but at no time was this affection present among the cases ashore. Just before the battalion left for home, one man went insane.

Flies, mosquitoes, and sand fleas were in the vicinity of the camp in great numbers and seemed to be increasing, excepting the flies, which decreased as improvements were made for the disposal of garbage and excrement.

Sixteen men were invalided home, and if the battalion had not been ordered back to the United States others would have had to be sent.

If this battalion was ordered to Guantanamo for the purposes of recuperation, the object was defeated. There was much malarial infection among the men, the difference in climate was not sufficiently great, and the living and sanitary arrangements were far worse than those provided for the battalion on the Isthmus.

The following recommendations are submitted for the consideration of the Bureau:

1. That the Naval Regulations be amended so that naval medical officers serving in the field with marines will have the right to make suggestions to the commanding officer in regard to camp sanitation and military hygiene when they deem it necessary. If the regulations were so amended, a medical officer's authority to make recommendations would be unquestioned. As it is now there is nothing in the present regulations covering our duties in camp, whereas a medical officer afloat has the privilege of making recommendations about the sanitary condition of his ship. It is suggested that regulations similar to those for medical officers of the United States Army be used for naval medical officers when on this duty.

2. It is also recommended that naval medical officers and hospital-corps men serving with marines in the field be authorized to wear a uniform similar to that of the marines. As it is now, this uniform is worn as a necessity, and it would be much better if authority for its use were embodied in the uniform regulations of the Navy.

REPORT ON THE MALARIAL FEVERS PREVALENT AT CAMP ELLIOTT, PANAMA (FIRST REGIMENT, PROVISIONAL BRIGADE, U. S. MARINES).

By G. L. ANGENY, *Passed Assistant Surgeon, U. S. Navy.*

The time embraced in this report extends from January 7 to February 10, 1904. During this time there were admitted to the First Regiment hospital, at Empire, 118 cases of fever.

The clinical picture presented by these cases has been so markedly similar that a description of a few would answer for the greater number of them.

Etiology.--In every case an attempt was made to elicit a history of exposure to the bites of mosquitoes, but in no case was this definitely obtained. In and about the camp there were few mosquitoes. At no time were they plentiful enough to be a source of annoyance. All the specimens that we were able to capture or breed were *stegomyia* or varieties of *culex*. Frequent search was made, but no *anopheles* were ever seen.

Frequent sanitary inspections of the camp were made, and on all of these inspections special efforts were made to detect and abolish breeding places for mosquitoes. On one occasion two such breeding places were found, near the quarters of Company C (a water barrel and an old fountain basin). This company had been contributing the largest percentage of sick, and the subsequent reduction in the number of cases from among them was undoubtedly due in a measure to the removal of this source of infection.

About the same time that the above-mentioned nuisance was abolished, it was discovered that a large number of the men were using their mosquito nets improperly, and in some instances were not using them at all. Rigid night inspections were instituted and the proper use of the nets made compulsory.

It is doubtful, however, if complete protection from mosquitoes can ever be afforded by nets. Not only is it practically impossible to prevent their being disarranged at some time during the night sufficiently to allow entrance for the mosquito, but some part of the body of the sleeper is almost sure to come in contact with the net, and allow the mosquito to attack through the mesh. A very noticeable decrease in the number of cases of fever occurred after the proper use of the nets was begun, but as the setting in and establishment of the dry season occurred at about the same time, it is purely conjectural how much the improved condition was due to the one and how much to the other.

Incubation.—In only one case could the period of incubation be fixed with any degree of accuracy. This was in a man who arrived at Colon on January 3, and on January 7 was transferred to Empire. There was no history of previous attacks. On January 12 he was taken ill, and admitted to the sick list on the following day. An examination of his blood on the day of admission showed numerous malarial parasites.

Symptoms.—In about one-half of the cases prodromal symptoms were present from a few hours to several days. These were anorexia, slight nausea, constipation, vertigo, headache, general pains, lassitude, and malaise. Quite as frequently, however, the attack would come on suddenly, with one or all of the following symptoms: Headache, nausea, vomiting, vertigo, and chill, followed by hot sensations. Sometimes there would be no chill, while in other cases only a chilly sensation would occur. In many cases the sweating stage would be entirely absent. Headache was a prominent symptom in nearly every case, and would last usually until the patient was well cinchonized. It was in most cases frontal, but in many cases the whole head would ache.

Nausea and vomiting occurred in fully one-half the cases, and was in many a most distressing and obstinate symptom. In several cases vomiting was the only symptom present on admission, the temperature being normal or subnormal, but an examination of the blood showed the presence of the malaria parasite. Several cases admitted with slight diarrhea were found to have the malaria parasite in their blood, and improved quickly under full doses of quinine. An urticarial eruption was, in 3 cases, the first symptom noted. In these cases the urticaria recurred with each febrile paroxysm.

Albuminuria occurred in 7 cases. In 6 only a trace of albumin was present, but in 1 case there was fully one-sixth by bulk. In the latter case the albumin appeared on the third day and the fever was high (105° F. to 106° F.), but there was no nausea or vomiting, no jaundice, or other symptom suggesting yellow fever.

In only 1 case was icterus noted, and then it was of a very slight degree, suggesting more the yellowing of chronic malaria than the jaundice of an acute attack.

As quinine was so uniformly administered on admission, a study of the temperature charts is of little interest. Where the fever was not too markedly modified by quinine, and was of sufficient duration, it was almost invariably of the tertian type; remittent in the initial attack, intermittent in the relapses. The highest temperature recorded was 106° F., and that in only 1 case. A temperature of 104.5° F. was in most instances the highest point reached, and termination was usually by rapid lysis in from two to four days.

Treatment.—At this hospital quinine was, except in one or two cases, given immediately on admission, together with a calomel and sodium-bicarbonate purge. It was found that the sooner the patient was cinchonized the more promptly he recovered. Fifty grains of quinine in twenty-four hours was the maximum dose given. At first we gave quinine in solution, but soon found that its administration in that form tended to increase and to prolong the tendency to vomiting. Five grains, in pill form or in capsule, every three hours for five or six doses gave the best results. As soon as the patient was thoroughly cinchonized, the dose was reduced to 5 grains three times daily. This was continued for from three to five days, when the patient was usually fit for duty. Quinine, 3 grains, with Fowler's solution, 4 drops, three times daily, was continued for a week or ten days after the patient was discharged to duty, and then a dose of 15 grains was given every six days. Under this course of treatment the patients did well, as a rule. Two cases resisted quinine for about a week. Complete recovery occurred, or what appeared to be complete recovery, as the time as yet has been too short to exclude the possibility of relapses.

Relapses have occurred in 7 cases, but in 5 of these the routine after treatment was not followed.

Blood examinations.—Not until January 18 was anything like a systematic examination of the blood begun. From that time on the blood in all cases of fever was examined microscopically on admission, and in most instances quinine administered irrespective of the findings. In following this plan the blood specimens were frequently taken during the afebrile period, or during the remission, and as a result negative findings were frequent. In only a few cases was the parasite found after full doses of quinine had been given. In those cases where quinine was for the time withheld, subsequent examinations of the blood in every instance showed the case to be one of malaria.

The parasite found is regarded as the subtertian parasite of Manson, although it does not seem to conform entirely to his description. One point of great difference is the size. Many of the parasites found were not more than one-sixteenth and even as small as one-twentieth the size of the red cell, both in the early hyaline stage and in the young pigmented stage. The parasite was most readily demonstrated during the chill (when a chill occurred), or during the hot stage when there was no chill. I have not seen any segmenting or flagellate forms, neither have I as yet discovered any crescents, but during the time covered by this report only 5 cases of relapse occurred, and in all of these the fever was of a sharply intermittent type, responding readily to quinine, and there was no suggestion of chronicity. The parasite found in these was the adult pigmented intracorpuscular form.

While the malarial parasite was not found in the blood in a large percentage of the cases, I am yet of the opinion that they all were malaria. This opinion is based on the clinical similarity of the cases, the promptness with which they responded to quinine, and the tendency to relapses. In nearly all of the relapsing cases the malarial parasite was found, even though it could not be demonstrated in the original attack.

Little was done in the way of examining the blood of the natives who applied for treatment, but in most of them a history of chills and fever could be elicited, while enlarged or "ague-cake" spleens were frequent. In one case (a child of thirteen months) the malarial parasite was found.

SPECIAL REPORT ON CASES OF FEVER OCCURRING ON THE U. S. S. BOSTON.

By H. C. Curl, *Passed Assistant Surgeon, U. S. Navy.*

The first detachment of 27 men and officers left the ship on December 15 and proceeded to Real de Santa Maria, 50 miles up the Tuyra River in the district of Darien, the Republic of Panama. On December 19 another detachment left, making 102 in all. Real and the surrounding country were swampy, low, and muddy; mosquitoes were fairly numerous, the *anopheles* being identified. The men slept in the best places they could find, some in hammocks slung from poles; some on rubber blankets on the ground; and still others under thatched roofs, open at the sides. There were no tents on the ship, and awnings, therefore, had to be used as shelters. The weather was very bad, rain falling daily, and the men were wet during nearly their entire stay in the camp. Each officer and man was provided with a piece of mosquito netting, ample in size, and instructions were given to everyone to use the nets carefully because of the danger from malaria.

The food and water supply was fair, and no troubles resulted traceable to such causes.

The majority of the men returned to the ship on December 24, leaving 29 marines at Yavisa. I remained with this detachment.

On December 31 cases of fever began to report at sick call, both on board and at the camp at Yavisa. There were 70 cases in all, besides several not admitted to the sick list, following one well-defined general type and varying only in severity. All of the cases developed among those men and officers who were with the expedition, giving a period of incubation of some six to twelve days.

The fever was characterized by a rapid rise of temperature, following a more or less severe rigor, reaching 105° to 106° F., becoming normal in five to eight days and leaving no immediate sequelæ.

The temperature at the time of reporting at sick call was 100° to 102° F., the patient usually stating that he began to feel indisposed the day before—a chill being the first symptom noticed. On the third day the temperature usually reached 104° to 106°F., with morning and evening variation well marked, but irregular. One exceptionally severe case had fever for twelve days. Distinct restlessness and insomnia were the rule, but there was no delirium.

The pulse in the early stages was full, strong, and rapid, but later was decidedly depressed and weak; in one case so markedly so as to need active stimulation.

There was almost total loss of appetite for the first few days, but it returned slowly as the fever dropped. The tongue was thickly coated with a white fur. Constipation was the rule, a cathartic being needed in almost all cases. Thirst was marked, and nausea and headache, with vertigo, was the rule. A few patients vomited several times during the first few days. The liver was not enlarged. Two cases, both of which had very severe vomiting, developed decided jaundice. The spleen was tender on pressure, and many complained of pain or a sense of weight in that region. There was little or no enlargement except in two cases, in which it was slight. The urine was highly colored, but otherwise normal; repeated examinations failed to find albumen. Among the general symptoms were more or less pain in the back, head, neck, and muscles, together with great prostration, lasting for several days after the temperature had reached normal. Herpes labialis occurred in 12 cases; otherwise there was no eruption of any sort. No sequelæ developed and recovery in every case was complete for the time being.

I find by questioning local medical men and the people of Real and Yavisa that this fever is almost sure to attack a newcomer in this country, but that occasionally even an old settler suffers. It is not feared, and a dozen different causes were assigned for it by as many different people questioned. Exposure, the sun, the dew, the moonlight, the water, the "air being new" to the newcomer, are among the reasons given. They do not consider it as malarial. Quinine did not influence the course of this primary fever in the least.

After being discharged to duty a period of from fourteen to twenty-four days elapsed during which there were no symptoms whatsoever; then many patients, 37 in all, began to report again at sick call. They all had typical tertian fever controlled by quinine and arsenic, and in several of the patients (where there was an opportunity for blood examination) the tertian organism was easily demonstrated in fresh specimens, both unstained and by Wright's stain.

In 22 cases, 12 of whom were admitted to the sick list and 10 treated at sick call only, second and third recurrences have taken place in spite of the steady use of quinine in small doses. Seventy persons have been admitted with fever of the first type, and 38 of these with tertian fever later. Fifty of the ship's company are more or less debilitated and will probably remain so until the ship reaches a colder climate.

Since January 1, 1904, there have been 450 sick days, as compared with 156 sick days for the entire fourth quarter of 1903.

REPORT ON AN EPIDEMIC OF DIPHTHERIA ON THE U. S. S. ADAMS.

By EDWARD G. PARKER, *Passed Assistant Surgeon, U. S. Navy.*

The disease was discovered first on February 16, two cases of rather severe type occurring. These were given large doses of antitoxin and immediately transferred to the Agnew Sanitarium, San Diego, Cal., and placed under the charge of the surgeon of the United States Public Health and Marine-Hospital Service. The following day a suspect was found; a culture taken showed the Klebs-Loeffler bacillus, and this patient was likewise transferred to the Agnew Sanitarium.

On the morning of February 18 two more "sore throats" appeared, and antitoxin was given and cultures taken, which showed the bacilli next day. February 19 six new suspects were found, of which four showed true diphtheria. On this day the ship proceeded to the quarantine station, and all cases and suspects were transferred on shore and isolated in tents. Antitoxin was administered freely.

As soon as the disease was discovered I held throat inspection every twelve hours, and by this means discovered three persons who had been ill for twenty-four hours and for some unknown reason had wished to conceal it. I also discovered in this way one of the worst cases we had.

The ship was disinfected, the effects of all on board sent through the steam chamber, and each individual given a thorough cleansing. The men were comfortably quartered in the detention barracks and were allowed on board ship ten days after the appearance of the last case.

Sulphur was chosen for the disinfection of the ship, because the vessel was infested with rats and roaches. Formaldehyde gas was used in the cabin.

I had been on the lookout for diphtheria for some time, for there had been an unusual number of cases of sore throat on board during the month. These throats, however, were suspicious, not so much from the clinical evidences as from their large number. In fact, at times there would have been no sick list had it not been for these throats. I took repeated cultures and finally sent specimens to Los Angeles for growth on Loeffler's blood serum, for there was none of this at hand and I had been using egg albumen. All throats were negative until February 16, when I discovered the organism by growth on a hard-boiled egg. One end of the egg was inoculated and it was then placed in an egg cup, the whole being covered with a glass and put in a warm place. A growth sufficient for diagnostic purposes was found after twelve hours. The organism on the egg presented an appearance midway between the growth on agar-agar and on Loeffler's blood serum.

There were in all 4 cases of severe type, the other 5 being only moderately sick.

As to the source of the epidemic, the disease was probably brought on board from San Diego, for there had been no diphtheria on board ship for seven months, and the ship was thoroughly disinfected after the last case.

REPORT UPON THE EXPERIMENTAL TUBERCULAR CAMP AT THE UNITED STATES NAVAL HOSPITAL, PENSACOLA, FLA.

By B. L. Wright, *Passed Assistant Surgeon, U. S. Navy.*

In December, 1903, the experimental camp for tubercular patients was established within the limits of the hospital grounds at this place, and it has now been in operation some seven months. These grounds comprise about 15 acres, which are located upon a bluff of about 25 feet elevation, upon the north side of Pensacola Harbor and about a mile west of the navy-yard, overlooking both Pensacola Bay and the Gulf of Mexico.

The soil of the inclosure is sandy and has good natural drainage; the presence of a large number of live-oak trees adds to the beauty of the surroundings, and affords many shaded spots where the patients may rest protected from the sun in hot weather.

The winters here are mild and permit of the patients living in tents without heat. The summers are long, hot, and enervating. The atmospheric humidity is high, the mean relative humidity averaging 78.

The average rainfall for the past twenty-four years has been 56.75 inches per year.

During the same period of time the average number of clear days per year has been 145; partly cloudy with rain, 132; rainy days, 88.

The camp is equipped with 21 Munson tents, 17 of which are at present used by the ambulant patients, and the remaining 4 are reserved for those confined to their beds.

Each tent is arranged for two patients.

For bathing purposes a small number of galvanized foot tubs are in use.

There are no bathrooms in the hospital.

For the use of the entire hospital there is one latrine, containing six seats, the excrement being collected in earthen jars, which are removed once daily and buried outside the hospital grounds. This is entirely inadequate and from a sanitary standpoint most objectionable.

All the water used for drinking, cooking, and bathing purposes, and for use in the operating room, is rain water drained from the hospital roof and collected in a cistern of 8,000 gallons capacity.

For the past month this cistern has been dry, and we have been compelled to haul the water in barrels from a spring outside of the grounds, about 250 yards distant.

It is almost impossible to obtain meat of good quality at this place. Fresh vegetables are always scarce, poultry and fresh eggs are difficult to obtain, and the milk is poor in quality.

For laboratory purposes one of the rooms for sick officers has been used, and, as its equipment consisted of a microscope, the necessary stains, a small table, etc., without a sink or running water, the work has been both difficult and long.

Each patient is supplied with two sputum receptacles, one of which has a metal frame, with spring-hinged lid, in which is fitted a heavy cardboard box, and the other is a folding cardboard pocket cup known as the "Appel." These are collected one or more times daily, according to the amount of expectoration, and burned.

The destruction of sputum has heretofore been accomplished by means of a small stove, set up in the open, but a crematory is now being provided. It is questionable if all the sputum was burned when the stove was used, as it is quite probable that some of it passed through the grate unconsumed.

Camp routine.

Temperatures taken	7.00 a. m.
Breakfast	8.00 a. m.
Sick call and camp inspection	9.00 a. m.
Breathing exercises	9.30 a. m.
Raw eggs and milk served	10.00 a. m.
Dinner	12.00 m.
Raw eggs and milk served	3.00 p. m.
Temperatures taken	4.00 p. m.
Supper	4.45 p. m.
Sick call	5.15 p. m.
Raw eggs and milk served	8.00 p. m.
Lights out	9.30 p. m.
Camp inspected	9.45 p. m.

All patients whose maximum daily temperature does not rise above 100° are required to take breathing exercises, encouraged to walk, and urged, now that the weather is warm, to bathe in the bay for a short period of time daily.

Since the establishment of the camp there have been under treatment 44 patients. A short tabulated description of each case is here given:

[Stage of disease: 1, infiltration; 2, consolidation; 3, consolidation with cavity formation. x in column indicates condition.]

In order of admission.	Date admitted.	Right lung involved.	Left lung involved.	Both lungs involved.	Stage of disease.	Hemorrhages.		Pleurisy.	Complications and intercurrent diseases.	Disposition.	Remarks.
						Before admission.	After admission.				
	1903.										
1	Sept. 6			x	1	x			Diarrhea	Invalided from service at own request Apr. 21, 1904.	Very much improved.
2	Nov. 5			x	2			x		do	Do.
3	Nov. 13			x	2	x		x		Under treatment	Improved.
4	Dec. 6			x	2		x[a]	x		do	Very much improved.
5	Dec. 15			x	2					do	Clinically cured.
6	Dec. 18	x			2					Invalided from service Apr. 21, 1904.	Drunkard. Habits prevented improvement.
7	do			x	2				Malaria	Under treatment	Very much improved.
8	Dec. 25			x	2			x	Diarrhea	Expiration of service May 17, 1904.	Do.
9	do			x	2				Congestion of liver	Under treatment	About the same.
10	Dec. 28			x	2				Enlarged spleen	Died Feb. 24, 1904	Death followed abdominal section.
	1904.										
11	Jan. 16			x	1			x		Under treatment	Improved.
12	Jan. 20			x	2				Diarrhea	do	Failing.
13	Feb. 2			x	2				Malaria	do	About the same.
14	do	x			1					do	Very much improved.
15	do	x			1					do	Improved.
16	do			x	2					do	Do.
17	do			x	1				Diarrhea	do	Do.
18	do	x			1				Tubercular left inguinal adenitis.	do	Very much improved.
19	do			x	2				Ischio-rectal abscess, tubercular.	do	About the same.
20	do			x	2	x			Diarrhea	Under treatment	Improved.
21	do	x			1					Invalided from service at own request May 21, 1904.	Do.
22	do	x			1				Chronic gastritis	Under treatment	Do.
23	do			x	2				Chronic nephritis	Died Feb. 8, 1904	Died 6 days after admission.
24	Feb. 20			x	2					Invalided from service at own request May 21, 1904.	Very much improved.
25	Feb. 24	x			1					Under treatment	Do.
26	Feb. 28	x			2	x			Diarrhea	do	Improved.
27	do			x	1				Necrosis lower jaw; ischio-rectal abscess.	do	About the same.
28	Mar. 7			x	1				Gonorrheal cystitis	Invalided from service Apr. 21, 1904.	Drunkard. Habits prevented improvement.

[a] First week.

In order of admission.	Date admitted.	Right lung involved.	Left lung involved.	Both lungs involved.	Stage of disease.	Hemorrhages.		Pleurisy.	Complications and intercurrent diseases.	Disposition.	Remarks.
						Before admission.	After admission.				
	1904.										
29	Mar. 8			x	2		x			Under treatment	Improved.
30	Mar. 10			x	1	x		x	Ventral hernia	do	Very much improved.
31	Mar. 11			x	2				Passive congestion of liver.	do	About the same.
32	Mar. 14			x	2	x				Invalided from service at own request Apr. 21, 1904.	Improved.
33	do			x	1					Under treatment	Do.
34	do									do	Too ill to examine; failing rapidly.
35	Mar. 20			x	2					do	Improved.
36	Mar. 22			x	2					do	Do.
37	Apr. 3			x	1					do	Do.
38	Apr. 8									Invalided from service May 13, 1904.	Discharged without data. Drunkard and morphine user, which prevented improvement.
39	Apr. 19									Under treatment	Too ill to examine; failing rapidly.
40	do			x	2				Otitis media	do	About the same.
41	Apr. 26			x	1				Suppurating glands	do	Improved.
42	Apr. 30			x	3					do	About the same.
43	May 6			x	2					do	Slight improvement in general condition.
44	May 9			x	2				Enlarged spleen; malarial.	do	About the same.

Weight and temperature table.

In order of admission.	Date admitted.	Weight when admitted.	Present weight.	Net gain or loss.		Temperature.		Disposition.
				Gain.	Loss.	On admission.	Present time.	
	1903.							
1	Oct. 6	135	153½	18½	......	103.0	98.6	Invalided from service.
2	Nov. 5	134¾	144¼	9½	......	102.0	98.6	Do.
3	Nov. 13	125½	124	......	1½	100.0	98.6	In hospital.
4	Dec. 6	131	148½	17½	......	101.0	98.6	Do.
5	Dec. 15	126	140	14	......	100.6	98.4	Do.
6	Dec. 18	136¾	134	......	2¾	99.0	98.6	Invalided from service.
7	...do....	121½	140	18½	......	101.0	98.4	In hospital.
8	Dec. 25	129½	136½	7	......	100.0	98.4	Discharge; expiration of enlistment.
9	...do....	157½	145	......	12½	100.0	99.0	In hospital.
10	Dec. 28	163	......	......	......	101.0	......	Died.
	1904.							
11	Jan. 16	121½	130	8½	......	99.4	98.4	In hospital.
12	Jan. 20	119	94	......	25	103.0	101.4	Do.
13	Feb. 2	129	122½	......	6½	100.0	98.8	Do.
14	...do....	118	133	15	......	99.0	98.4	Do.
15	...do....	137	135	......	2	99.0	98.6	Do.
16	...do....	149½	145	......	4½	101.0	98.8	Do.
17	...do....	118½	121	2½	......	99.0	98.8	Do.
18	...do....	131	144	13	......	99.0	98.4	Do.
19	...do....	133½	129	......	4½	99.0	98.8	Do.
20	...do....	127	126	......	1	100.0	98.6	Do.
21	...do....	116½	123	6½	......	99.0	98.4	Invalided from service.
22	...do....	129	132	3	......	99.0	98.4	In hospital.
23	...do....	......	......	......	......	102.0	......	Died.
24	...do....	141	155	14	......	99.0	98.4	Invalided from service.
25	Feb. 24	165	178½	13½	......	99.0	98.4	In hospital.
26	Feb. 28	154½	160	5½	......	100.0	99,0	Do.
27	...do....	147½	140	......	7½	101.0	99.0	Do.
28	Mar. 7	129½	132½	3	......	100.0	99.0	Invalided from service.
29	Mar. 8	138½	142½	4	......	100.0	98.8	In hospital.
30	Mar. 10	147	150	3	......	103.0	98.8	Do.
31	Mar. 11	118½	115½	......	3	102.0	100.0	Do.
32	Mar. 14	131½	138	6½	......	99.0	98.4	Invalided from service.
33	...do....	99	99	......	......	100.0	99.0	In hospital.
34	...do....	123	(a)	......	......	104.0	102.0	Do.
35	Mar. 20	134½	131½	......	3	102.0	98.8	Do.
36	Mar. 22	102	102	......	......	100.0	98.8	Do.
37	Apr. 3	122	127	5	......	100.0	98.5	Do.
38	Apr. 8	147	157	10	......	102.0	99.0	Invalided from service.
39	Apr. 19	93	(a)	......	......	103.0	102.0	In hospital.
40	...do....	126	123½	......	2½	101.0	98.8	Do.
41	Apr. 26	153	159½	6½	......	101.0	98.8	Do.
42	Apr. 30	121½	117½	......	4	101.0	99.4	Do.
43	May 6	127½	128½	1	......	99.0	98.4	Do.
44	May 9	122½	121½	......	1	102.0	99.0	Do.

[a] Too ill to weigh.

From the preceding tables it will be seen that of the 44 cases treated, in 8 of them the disease has been confined to one lung, and in each case it has been the right lung that has been diseased.

In 6 of these 8 cases the disease has not passed the first stage, or that of infiltration; the remaining 2 cases are in the second stage, or that of consolidation.

In 36 of the cases under treatment the disease exists in both lungs, 9 being in the first stage, 24 in the second, and 1 in the third. Two of the cases in the second stage are too ill to submit to a careful physical examination, and it is very probable that both of them would show extensive consolidation and excavation of both lungs.

Six cases had hemorrhages before admission and 2 since admission, leaving 36 nonhemorrhagic cases.

Six cases give evidence of old adhesive pleurisy. One case is clinic ally cured.

Three cases have been invalided from the service very much improved, 3 cases were discharged from the service because of habits which prevented improvement, 1 was discharged by expiration of enlistment, and 2 have died. One death followed abdominal operation, and the second died six days after admission.

Of the total number of 44 cases treated, the results are shown by the following table:

Clinically cured	1
Very much improved	10
Improved	16
About the same	7
Failing	3
Habits prevented improvement	3
Period of time under treatment too short for observations to be of any value	2
Died	2
Total	44

I believe these results will compare favorably with any like number of patients treated anywhere for the same period of time, and there is no doubt that the results would have been better had the camp been a separate establishment, where no other class of patients were under treatment.

Specific treatment directed toward the pulmonary condition has been found valueless. Such drugs as heroin and codeine have been employed to check severe and excessive cough.

Hemorrhages have been controlled by rest, morphine hypodermically, and an ice pack to the chest. Where the heart's action has been weakened, strychnia has been administered.

Where the appetite and digestion have been poor, tonics have been given.

Although the administration of alcoholic spirits to this class of patients is not desirable as a rule, it has been found necessary at this hospital to give it to a few cases, and with advantageous results. It has been given in 30 c.c. doses half an hour before meals, usually in the form of brandy.

The intercurrent diseases have been treated as necessary.

REPORT ON BAHIA HONDA, CUBA.

By HERBERT O. SHIFFERT, *Passed Assistant Surgeon, U. S. Navy.*

From August 10 to September 10 the U. S. S. *Nashville* was at anchor at Bahia Honda, the prospective United States coaling station on the northwest coast of Cuba.

Hordes of mosquitoes infest the marshes which surround the bay, and, driven by the prevailing winds (easterly), they appeared in overwhelming numbers aboard ship. They were a constant annoyance during the daytime and caused much loss of sleep at night.

About 1,500 specimens were examined, with the following approximate results:

Culex pipiens, *Culex sallicitans*, *Culex tæniorhynchus*, and several other species of *Culex* which were not identified, together constituted about 90 per cent of the total number of mosquitoes examined. The

Anopheles punctipennis and *Anopheles maculipennis* made up about 5 per cent of the sum total, and the former outnumbered the latter four to one

A few of the *Stegomyia fasciata* were found, and a large number of a certain genus which I failed to recognize. This mosquito is of a thrush-brown color, has a rather long proboscis, short, thick palpi, exceptionally long and gracefully curved antennæ, faint stripes across the abdomen, and without white bands on the legs.

So far as ascertained, none of the natives living in the immediate vicinity were at the time suffering from malarial attacks; but it was learned that they were thoroughly acquainted with the symptoms of a typical malarial paroxysm.

The immediate results from the mosquitoes aboard ship were a number of cases of skin lesion due to mosquito bites and subsequent infection caused by scratching with the finger nails.

Thirteen days after leaving Bahia Honda two cases of malarial fever developed aboard ship, the infection of which could not be traced to any other than the above source.

On account of the extensive marshes around the bay, the extermination of the mosquitoes, which at the present time, because of their number and variety, amount to a scourge, as well as to a very probable source of malarial and possibly yellow fever and filarial infection, will require determined efforts in the event of our Government establishing a coaling station at this place.

SELECTED MEDICAL, SURGICAL, AND SANITARY NOTES FROM SHIPS, SHORE STATIONS, AND HOSPITALS.

UNITED STATES NAVAL HOSPITAL, NEW YORK.

(*Note.*)

HOSEA J. BABIN, *Medical Director, U. S. Navy.*

Hernia.—Concerning hernia, which at present presents the most numerous and important operative cases, it is to be noted that a certain selection of cases is advisable. During the past year there have been under treatment at this hospital three cases in whom the hernia had recurred after operation. These cases were operated on by different surgeons in each case, one at the Norfolk Hospital and two at New York. They had large loose abdominal walls and were doubtful cases for operation. Two were reoperated upon, using the McBurney operation in place of the Bassini, and there has been no return as yet. Cases over 40 years of age and cases with large, loose, thin-walled abdomens are unsuitable cases to operate on for service purposes. Cases that have occurred prior to enlistment also, unless with specially strong rings and walls, are better considered unfit for operation for service purposes and surveyed with a view to discharge from the service.

UNITED STATES NAVAL HOSPITAL, CHELSEA, MASS.

(*Note.*)

DWIGHT DICKINSON, *Medical Director, U. S. Navy.*

Concussio—head and chest.—Patient fell from the lower mast cap of the U. S. S. *Southery* to the deck, a distance of 47 feet, striking on his left arm, head, shoulders, and chest. On admission patient was semiconscious, aroused only by loud voice, was cyanotic, and expectorating bright red blood. Pulse was 130, and respirations 50 per minute, labored and jerky. A contusion was found on the left arm and on the sternum; crepitus and deformity, showing dislocation, existed at the junction of the second right rib and sternum, and at the junction of the manubrium and gladiolus. The chest showed coarse râles, as of plugging of the bronchi with blood, there evidently being a rupture of some blood vessel. Soon after admission the extremities became cold and the respiration more labored. The patient had warm blankets and heaters applied, turpentine stupes put to chest, stimulating enemata, nitroglycerine 1/75, and strych. sulph. gr. 1/30 given, and an ice cap put to head. Patient remained the same for twelve hours, when the condition improved. The stools were dark from the blood that had been swallowed. There were some pneumonic symptoms, which subsided, the temperature becoming normal by the eighth day. Patient recovered.

UNITED STATES NAVAL HOSPITAL, NORFOLK, VA.

(*Note.*)

Remus C. Persons, *Medical Director, U. S. Navy.*

Ligation of the right innominate artery.—The patient had been in the hospital almost two weeks and had had repeated hemorrhages from an almost complete cut of the right axillary artery. The arm was tightly bandaged to side, as from the nature of the wound and the large intermuscular clot the bleeding point could not be located. An effort was made to locate the subclavian, but the artery could not be found as there was no pulsation in it and the anatomical relations were disturbed by an immense and almost organized clot. As the hemorrhage was severe, the innominate was tied at point of bifurcation, with fatal result.

UNITED STATES NAVAL HOSTITAL, MARE ISLAND, CAL.

(*Note.*)

M. H. Simons, *Medical Director, U. S. Navy.*

Case of feigned disease (melancholia).—An electrician, third class, aged 23 years, was transferred from the naval prison, United States marine barracks, navy-yard, Mare Island, Cal., to this hospital, December 12, in accordance with report of board of medical survey, suffering with melancholia (?). He had been confined under a sentence of general court-martial and was to be dishonorably discharged from the United States naval service. On admission he was taciturn, and it was with much difficulty that he could be made to answer questions. He constantly said that some women wished to poison him, and when placed in the hospital brig he stated that they came to the windows and tried to get at him. It was thought he was malingering, and he was put on a bread-and-water diet, which he refused to eat, saying it was poisoned. Two days after admission he became violent and had to be confined. Several hours later the straps were found to be partly cut and broken. It was afterwards found he had used his finger nails to cut them, and then by main strength broke them. Continuing violent, he was confined in irons. At this time he said he was "Bosco, the snake eater," and wanted a live snake to eat. With the object of proving him a malingerer a pet live shake was taken to him, but he gave such evidence that he wanted to eat it that the owner of the snake would not allow the test to be carried further.

About ten days after admission patient was purged violently with magnesia sulph. At 9 o'clock in the evening of the same day, he sent for his attending medical officer, who found him smiling and looking perfectly sane. In an embarrassed, ashamed way, he said, "I give it up, you win, Doctor; the bread and water and salts done the work." He then stated that he had feigned insanity because he was a prisoner serving a general court-martial sentence and was to be dishonorably discharged from the service, and thought that by following out the above he could manage to secure a physical-disability discharge instead. He was returned to the naval prison.

U. S. S. CHICAGO.

(*Note.*)

Ezra Z. Derr, *Medical Inspector, U. S. Navy.*

Fractura (*frontal bone and femur*).—On March 31, off Leghorn, during a blow, the port quarter-bit was torn from the deck and struck an ordinary seaman who was working near by. The rounded corners of the bit evidently hit him on the head, producing a compound, depressed, and comminuted fracture over the right supraorbital ridge, involving the roof of right orbit. A bolt from the bit entered the inner side of right thigh, about the junction of middle and lower thirds, producing only a small skin wound, but causing an extensive comminution of the lower third of the femur, particularly the inner condyle, and severing the vastus internus. The wire hawser attached to the bit lacerated the skin of the right foot, from the toes to above the ankle, while the man was pinned to the deck. He was carried to the sick bay unconscious, and with free hemorrhage from wound of thigh.

The hemorrhage was first checked, and the sites of injury carefully rendered aseptic. After consultation it was decided to operate at once. Under chloroform anæsthesia, the depressed fragments of the frontal bone were lifted (after enlarging the opening with rongeur) and stripped from their periosteum. The right frontal lobe of the brain was found to be lacerated and some small spicules of bone were removed by gentle irrigation. The dura was closed, leaving a small opening for drainage and for a packing of iodoform gauze, and the skin laceration trimmed and sutured. The small skin incision of thigh was extended to the site of the bone comminution, and several fragments were removed. One piece was left in the skin wound when the bolt withdrew. The ruptured muscle was sutured with catgut and the wound irrigated and sutured, leaving a small opening for iodoform packing. The skin lacerations of right foot were sutured without drainage. A ham-splint was applied to the leg.

The patient reacted well from the shock and hemorrhage, and when transferred to the civil hospital at Leghorn on April 4 he had no fever and was partially conscious. His convalescence progressed until he was able to leave the hospital on June 1.

U. S. S. MAINE.

(*Notes.*)

N. H. DRAKE, *Surgeon, U. S. Navy.*

Fractura cranii.—The patient fell from the forward turret through the turret hatch to the handling room below, a distance of 35 feet, sustaining a compound, comminuted fracture of the skull. The line of fracture extended from in front of the tragus of right ear upward and backward for 6 inches across the right Rolandic area to the midline of the cranium. From midpoint on this line, extending at right angles in opposite directions, was a second line of fracture. Comminuted fragments of bone were removed from the lines of fracture. Depression and laceration of dura and parenchyma existed directly over fissure of Rolando. There was a fracture of the base of skull in middle fossa characterized by profuse hemorrhage from right ear. Large contusions were present on opposite side of skull; also severe contusions of the body, and fracture of both bones of right wrist 1 inch above joint. There was complete unconsciousness and stertorous breathing, becoming more shallow, which continued until death occurred. The cause of death was so apparent that an autopsy was not held.

Prostratio thermica.—During the trip from Hampton Roads to Culebra, U. S. W. I., in October, there were 15 admissions to the sick list for this condition, and about 30 others were treated for vertigo and cramps in muscles of abdomen and limbs. Only one of those admitted remained on the sick list more than two days, he being under treatment for five days. Many of those not admitted were excused for the whole or a portion of their watch below. This unusal number of cases was attributed to a combination of circumstances, viz: New men who were not used to the conditions below, and in several instances unfit for service in their ratings; varying temperatures caused by draughts and blowers; improper clothing of the men in the fireroom; the use of too much cold water while on watch; drinking water unfit for use on account of chlorides, and extremely hard work in a climate to which many of them were not accustomed.

U. S. S. MASSACHUSETTS.

(*Note.*)

JOHN M. STEELE, *Surgeon, U. S. Navy.*

Ambustio ex calore.—On January 16, 1903, at 11.15 a. m., during target practice, an explosion of a charge of powder occurred in the after 8-inch starboard turret. The turret is 6 inches in thickness, and rests on a barbette; the diameter, on the inside, is 15 feet 4 inches, and the height 6 feet 9 inches. Eight openings, one for hoisting ammunition, three small openings in the top for sighting the guns and for ventilation, and four oval openings in the sides, two for the guns to project through, and two opposite the breeches of the guns, exist in the turret. The practice charge is about 90 pounds of brown powder Both of the 8-inch guns were loaded and the breechblock about three-quarters open when the ignition and explosion in the right gun occurred. The charge in the left gun did not ignite, and was taken out intact. Nine men were in the turret at the time.

The brown powder is a compound of nitrate of potash, carbon, and sulphur, in a state of mechanical mixture. The products of the combustion of this powder are carbon dioxide and carbon monoxide, with a small quantity of sulphur in combination with hydrogen and oxygen. There is also some solid residue. There must have been great pressure developed inside of the turret, combined with great heat, which forced gases into the tissues. This would explain some of the effects produced. The burns covered from two-thirds to three-quarters of the entire surface of the body, and varied only in depth. One man, who was stationed at the left-hand gun, jumped through the port of the turret and landed on the deck outside. His statement was to the effect that, seeing a white spot in the surrounding red glow, he had dived for it instinctively. Another man, who was standing behind the breech-block of the gun in which the explosion occurred, was one of the first to emerge from the turret. The explosion appeared to cover a period of ninety seconds. All nine men walked to the sick bay from the superstructure deck, with some assistance, and one, in a dazed condition, jumped overboard, swam to and hauled himself into a boat before he could be secured. In several cases there was a browning of the skin of the face and head. The blanched mucous membranes of the nose and the board-like hardness of the surface in many places showed what enormous damage and destruction had been produced. Two of the men were salivated. The shallow respiration and varying, quick pulse denoted great nervous excitation and apprehension. One man said he had inhaled the hot air, and he was one of those salivated. There was some huskiness of the voice. All of the men had on clothing, and most of them had shoes and stockings on, which were smouldering when they reached the sick bay. One officer, who went partly into the turret after the explosion, was burned on the wrist and forearm through touching the side of the turret.

Pain was mitigated, so far as practicable, warm boracic-acid baths, followed by Carron oil or carbolized vaseline, with coverings of lint and cotton, were employed, combined with free administration of stimulants. Five men died between 3.30 and 8 o'clock p. m. on the same day. The remaining four men were transferred to the United States Army Hospital, San Juan, P. R., on the following day, where one died on the 17th, one on the 18th, one on the 22d, and the final one on the 23d. There were no wounds caused by unconsumed powder particles, nor were any cyclonic effects noted.

U. S. S. NEWARK.

(*Note.*)

A. C. H. Russell, *Surgeon, U. S. Navy.*

Febris enterica.—Eight cases of typhoid fever occurred, with 1 death and 7 recoveries. With the one exception noted, all the cases were mild and free from nervous symptoms. Circumstances made it necessary to treat 4 of the cases on board ship. The precautions taken to prevent conveyance of the infection by contact or otherwise were fortunately successful.

One case merits mention in detail because of the circumstances under which the patient became infected:

A private marine, aged 23, admitted November 25, with venereal adenitis, left groin. Had not been ashore since October 2. Had had attacks of follicular tonsillitis November 9 and 14. While ill with last attack of tonsillitis, unboiled milk was given him to drink for two or three days at Puerto Militar, Argentina. On November 27 he showed symptoms of febris enterica. This milk, which was obtained from the country, seemed to be the only source from which he could have gotten the infection. Although there was a patient with typhoid fever in the sick bay November 14, it is not thought that he contracted the disease from this case, on account of the precautions that were taken to prevent infection by contact or by flies. His temperature became normal during the third week. The milk in question was taken unboiled in coffee by the officers of the wardroom, and was given to two patients, one with typhoid fever, and another with tuberculosis. Two weeks later one of the officers had an abortive attack of typhoid fever, and the temperature of the patient with tuberculosis showed a typhoid character. The officer may have contracted the disease in drinking water at Bahia Blanca. All the other cases were infected by milk or water ashore in the different ports.

U. S. NAVAL HOSPITAL, SAN JUAN, P. R.

(*Note.*)

GEORGE PICKRELL, *Surgeon, U. S. Navy.*

Febris flava.—A private marine, 21 years of age, was admitted to this hospital early on January 23, 1904, from the U. S. S. *Newport*, which had just arrived from Santo Domingo. As he presented a clear clinical record of appendicitis, for which he was undergoing treatment, an appendectomy was done on the same forenoon, although the local conditions when seen were not thought sufficient to account for the symptoms. His temperature on the day of admission ranged from 100° to 102.4° F., and occasional vomiting was present. The patient did well during the 24th, and by noon of the 25th his temperature was normal, and remained so, or nearly so, throughout the 26th. On this last date general jaundice was noticed, with restlessness, sighing respiration, and marked obtunding of the mental faculties. On the 27th there was no improvement, and the urine contained a small amount of albumin. The case was now diagnosed as one of yellow fever, due to exposure to infection while ashore on duty at Santo Domingo city. The temperature rose, the vomiting became more frequent, the vomited matter becoming darker from the presence of more or less granular material. The temperatures (on the 27th) were: At 8 a. m., 99.2°; noon, 100°, midnight, 105.4°. The patient died early on January 28. An autopsy held six hours after death confirmed the diagnosis.

UNITED STATES NAVAL HOSPITAL, PENSACOLA, FLA.

(*Note.*)

H. N. T. HARRIS, *Surgeon, U. S. Navy.*

Data and some remarks in reference to the climate of Pensacola.—In the early part of December I requested Mr. B. Bunnemeyer, the local weather observer, to furnish me certain climatological data of Pensacola, and this he has very kindly done. I quote, as follows, a part of his letter:

> The climate of Warrington will probably differ but little from that of Pensacola. The summers are long and warm in this section and the winters short and comparatively mild, both seasons being greatly influenced by the proximity of the Gulf, which in summer tempers the heat by its refreshing diurnal breezes, and in winter prevents excessively low temperatures. The extremes in temperature occurring at this place are exceptions rather than a rule.
>
> The relative humidity is, of course, higher than in the interior; but the annual mean does not exceed any other section east of the Mississippi River by more than 6 per cent. Light fogs are rather frequent during the fall and winter in the early morning; but dense fogs are comparatively rare and hardly ever occur on more than five days in any one year, and then are of very short duration.
>
> The prevailing winds are from the Gulf in summer and from the interior in winter.

The relative humidity in this vicinity is rather high, much higher, in fact, than in the interior of the middle section of the country east of the Mississippi River. It is about the same, however, as other towns on the Gulf coast, on the east coast of Florida, and as far north as Norfolk. It may be said, however, that for many of the days in the autumn and winter the humidity is quite low, the air then being very bracing. The mean relative humidity for the year is 78.

The rainfall is heavy, the average being 56.75 inches for the past twenty-four years. The mean monthly rainfall is greatest in July and August. The summers here are long, and while the temperature on an average is not excessively high, yet, because of the fact that the nights are nearly as warm as the days, they are enervating. I have frequently observed the thermometer to be 85° or 88° between midnight and morning, and, as at this time the breeze usually subsides, the atmosphere is very dull and it is almost impossible to sleep. The southwesterly breeze referred to in the letter of the weather observer usually springs up in the early part of the forenoon. This breeze is very refreshing, but, as already stated, for several hours prior to the arrival of the breeze the atmosphere is very oppressive. While of course there may be in some seasons variations in the weather, yet, generally speaking, for the summer season, the remarks just made hold good with great regularity. I think it may be said, therefore, that the unfavorable features of this climate are the comparatively high mean relative humidity and the long rather enervating summers.

There are, however, some very excellent features in connection with this climate, and in my opinion the most important of these is the large number of entirely clear, sunshiny days. For the past twenty-four years the average number of clear days has been one hundred and forty-three per annum, and of partly cloudy days one hundred and thirty-two per annum. Of these latter a very large portion of the day, certainly more than 50 per cent, I think, is clear, for while it is not infrequently slightly cloudy or overcast in the early forenoon, it very often clears before midday, being bright and sunshiny for the rest of the day. Thus, if it had been practicable to keep a record in hours, the result would show a much larger percentage of clear days than is shown in this report. The rainfall here is quite heavy while it lasts, but is of comparatively short duration. It is, therefore, not only entirely safe but quite comfortable for one to be out in the open air during the greater part of the cloudy days. On the days when it is raining, even during the winter months, it is generally entirely comfortable in rooms on the upper floors, when protected by galleries, to open the windows and doors for purposes of ventilation. Thus the tuberculous patients who are at the hospital have not only slept on the gallery in the open, but have done so with comfort, and have improved very steadily.

In regard to fogs in this locality, they are of such rare occurrence and short duration that they may, in my opinion, be disregarded.

Sudden and extreme changes in the weather here are very rare. In this immediate locality there is an absence of dust in the atmosphere, which constitutes one of its most favorable features. Generally speaking, the winds are not sufficiently high to be disagreeable.

U. S. S. SAN FRANCISCO.

(*Note.*)

George Rothganger, *Surgeon, U. S. Navy.*

Tuberculosis testis.—A petty officer had suffered for more than a month with pain in his right testicle. There was no history of venereal disease or an injury. The organ increased in size. Under ether, an incision was made over the right external ring in the direction of the canal, the testicle dislocated through it, and an exploratory incision made into the organ. The following condition was seen, viz: The upper part of the epididymis was much thickened and contained two small tuberculous nodules. In the lower part of the epididymis was a tuberculous abscess of the size of a walnut. The tunica vaginalis contained a small amount of fluid. The cord was much thickened. The testicle was removed, all of the cord except the vas deferens being included in one ligature. The recovery was rapid and uneventful.

U. S. S. DIXIE.

(*Note.*)

Robert M. Kennedy, *Surgeon, U. S. Navy.*

Vulnus laceratum.—A serious and interesting injury occurred December 14, 1903. While the gig was being hoisted the after-falls in some manner became unhooked when near the davits, fully 35 feet above the water. The patient was in the gig at the time of its fall, and struck his back, probably against a rowlock of the boat or some unknown projection, inflicting an extensive penetrating wound of the chest at the left eleventh intercostal space, fracturing the twelfth rib and tearing the pleura.

As far as could be ascertained the lung was not injured, nor was there any shock. There was very little hemorrhage, no cough or expectoration of blood, but considerable pain, and air could be very plainly heard passing through the wound.

Under ether the wound was freely laid open and the rough end of the twelfth rib smoothed. A very small distal fragment was not recovered. A pleural rent about 1 inch long was united by very fine catgut suture. The wound was closed in part with silkworm gut, drained with iodoform gauze, and an aseptic dressing applied. The patient rested well, but was weak. On December 16 the temperature ranged from 103° to 103½°; respirations, 30 to 34; pulse, 115 to 120. The wound was opened and a quantity of dark clotted blood removed; the temperature immediately fell to 101°, respiration to 22, and pulse to 90. On December 20 the wound was again reopened, suture removed, and wound reunited, except opening for drainage and for about 1½ inches continuous therewith. Considerable discharge present on dressings but sweet; drainage with iodoform gauze maintained; less pain locally and gaining strength rapidly. December 21 had slight hacking cough of very short duration. December 22 redressed wound; dressings much soiled but sweet; gaining strength rapidly; decidedly less pain locally; appetite very good. December 23 transferred to the United States naval hospital, Philadelphia, for treatment; temperature, 99°; pulse, 70; respiration, 20.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Notes.*)

W. C. Braisted, *Surgeon, U. S. Navy.*

Appendicitis.—This patient had recurring attacks of severe appendicitis. He was operated on during an interval of quiescence. The appendix was found to be very long and firmly adherent to the tissues over the spinal column. At its base it was so much disintegrated that it broke away as the intestine was gently lifted from the abdominal wall. Extensive adhesions were found in all directions. The stump of the appendix and the area of the colon adjoining were very much softened and on the point of disintegrating. A ligature was thrown around the soft stump and tied gently but firmly, the abdominal cavity cleaned out, and the wound closed. The patient did fairly well for five or six days, passing gas and feces from the bowel. After this time the gas ceased to pass, also the feces, and the upper abdomen began to distend, but the temperature remained normal and the general condition good. Every effort was made to get something through the gut, but without success. The diagnosis of post-operative adhesions, occluding the gut at or near the ileo-cæcal junction, was made. Re-operation became imperative. On opening the abdomen the pelvis was found full of strong adhesions. Many of these were broken up, but the gut remained impervious until finally a small adhesive band was found thrown across the ileum, about 3 or 4 inches from the ileo-cæcal junction, and on breaking this the contents of the gut above were immediately freed and passed on to the colon. The wound was dressed, but the patient died from shock the same day. The case is interesting mainly as showing the possible results of post-operative adhesions.

Cordis valvularum morbus.—This patient, 60 years of age, was admitted to this hospital on May 12, 1903. The heart was extremely irregular and rapid, beating from 150 to 160 per minute, while the radial pulse was 115 to 130 per minute. No distinct heart murmur could be made out. The urine was scanty, contained hyaline and a few granular casts; sp. gr. 1028 to 1032; urea was normal when compared to the quantity of urine passed, but only about one-fourth as much as should be excreted in twenty-four hours; albumin one-tenth to one-half per cent; chlorides, phosphates, etc., about normal. Œdema of feet and legs had begun; there was some ascites of the abdomen, and beginning pulmonary œdema with a small patch of dry pleurisy at the base of the right lung. The condition of the heart seemed to be the primal etiological factor, but the kidney symptoms were most prominent and for the time led to the belief that there was a chronic interstitial nephritis as the main trouble, although the urine was not typical of that disease. Various diuretics, salines, purgatives, heart stimulants, and tonics, with regulated diet, hot baths, and hot packs were resorted to without any decided relief. The urine became more and more scanty until only a few ounces were passed, and the increasing œdema of the lungs, ascites of abdomen, etc., continued until the patient was absolutely in extremis.

A consultation was held with an eminent New York physician, who considered the case one of mitral stenosis primarily. He gave an unfavorable prognosis and recommended caffeine in large doses, combined with small doses of morphine sulphate, but gave no hope of any favorable outcome. This line of medication was tried faithfully for forty-eight hours without relief; in fact, pulmonary œdema was almost complete, the extremities cold and clammy, and cyanosis extended up the neck as high as the middle of the lobes of the ears. The patient was rapidly becoming comatose.

The picture now was one of marked mitral stenosis, with a heart beating frantically to get blood, but unable to obtain it from the obstruction caused by the stenosed mitral valve. The blood was dammed back into the lungs, causing intense congestion and pulmonary œdema, the right side of the heart, the portal circulation, and the entire venous system and kidneys being likewise embarrassed. The urine was absolutely typical of mitral stenosis. The logical conclusion was imminent death unless the mitral valve could be made to do its work and allow blood to flow into the heart. If this condition could be relieved and the diastole of the heart prolonged—that is, if the rest period of the heart could be lengthened, and so allow blood to flow into the heart—there seemed to be a chance that possible relief could be obtained. Digitalis, theoretically, seemed to be the drug indicated. It is to be noted that the tincture had been tried earlier in the disease and had failed. As a last resort, however, fresh powdered leaves of digitalis were obtained and 1 grain every two hours given, combined with morphine sulph. gr. 1 24. The effect was magical. In six hours the entire picture was changed. The urine began to be passed in large quantities, the œdema rapidly subsided, and in two days the patient was out of immediate danger. The improvement has continued, the digitalis being used as indicated until the pulse was reduced to 68 and the heart beats fairly normal in character at 80. At present the patient has had no medicine for three weeks and the heart and pulse continue at a fairly normal rate. The patient is about and in normal health.

The case has been an extremely interesting one, and especially so as the absolute absence of a murmur has caused doubt as to the presence of a mitral stenosis. There is a rheumatic history which may have been the etiological factor in producing a gradual thickening of the mitral valve, not sufficient ordinarily to interfere materially with the heart action, but sufficient to threaten life when embarrassed by a run-down condition or by the presence of an acute inflammatory disease. In this instance the trouble began with an acute attack of grippe, and was accentuated by the complication of a mild pleurisy.

Abscessus.—This patient, a young officer, was attacked while on a small ship in the West Indies with what seemed to be an intestinal obstruction, with formation of a large abscess on the right side of the abdomen, lying to the outer side of the ascending colon. The abscess was skillfully opened by the surgeon of the ship and the cavity drained. Soon after this, fecal matter was discovered in the discharges from the abscess and a diagnosis of fecal fistula was made. The appendix was not found in the operation for the abscess. The patient, after some weeks, was received in this hospital for treatment. On dressing the case and removing a drainage tube, which entered the abdomen anteriorly and emerged posteriorly somewhere about Petit's triangle in the back, a concretion from the sinus followed the tube as it was withdrawn. This concretion was about the size and had all the appearances of an olive stone, and came from about the region of the appendix, at or near its junction to the gut. The history of the case, the location of the concretion, and the after rapid amelioration of all symptoms leads to the conclusion that this stone became lodged in the appendix, that inflammation and abscess formation resulted, with the final sloughing of the appendix and the extrusion of the stone through the sinus. The case has done well since. A small sinus still remains, from which at times gas and thin fecal discharges occur, and which may require further operation.

Chronic interstitial nephritis.—This case came under observation over a year ago as what seemed to be a case of appendicitis. The case was operated on, and while no pus was found, yet extensive adhesions of the peritoneum, with a peculiar degeneration of omentum, mesentery, and vessels were found. The same degenerative process in the appendix and its mesentery existed. The appendix was removed, and the patient made a good recovery from the operation, but his general health remained indifferent. After some months he returned to duty, but last spring he began to have attacks of pain in the region of the appendix, as before. He consulted specialists of high rank, who finally decided that adhesion bands remained, and that a reoperation would be necessary. At this time (about June, 1903) the patient again entered the hospital. He was examined with great care. The urine was found to be typical of chronic interstitial nephritis, probably due to uric acid or rheumatic diathesis; there was always a trace of albumen; sp. gr. was from 1.001 to 1.015; urea was diminished from 25 grams per day to 6 grams; total quantity varied from 2,000 to 2,500 c. c. Hyaline casts, few in number, with red blood cells, were generally present. At times there was slight hæmaturia, and on two occasions he passed fairly good-sized calculi of oxalate of lime. Slight uræmic seizures occurred at times. It was finally determined that the attacks of pain and hæmaturia were caused by the oxaluria. With careful treatment the patient's condition improved, and he is now on leave.

This case is extremely interesting. It is now seen that he probably had had chronic nephritis for some years; that his ill health and apparent attacks of appendicular pain were due to a form of renal colic (oxaluria). Also, as sometimes happens in prolonged chronic nephritis, secondary inflammatory changes took place in the peritoneum, the omentum, the mesentery, and the appendix and adnexa. He had probably never had a true appendicitis, and a more persistent and careful examination of the urine might have shown this condition before operation.

U. S. S. MONTGOMERY.

(*Note.*)

JOHN E. PAGE, *Surgeon, U. S. Navy.*

Septicæmia (gonorrheal).—Patient reported for treatment on October 29 with gonorrhea, contracted four days before. He progressed favorably until November 15, when he complained of feeling sick, with headache, malaise, and general muscular pains. Bowels were constipated, tongue coated, and temperature 102.6°.

He was placed on the sick list with simple fever, and quinine, antifebrin, and calomel given. He continued to improve, and on the morning of the 18th his temperature became normal and he was discharged to duty. On November 21 he complained of pains about the hip joints, back, and elbows; also a sharp pain on the right side of the symphysis pubis, extending up into the abdomen. Testicles and cords were not painful; temperature was 103.6° F.

A diagnosis of gonorrheal rheumatism was made, and he was placed on the sick list. At 8 p. m. his temperature was 103.4° F., and a sponge bath was directed, after which he rested fairly well. The next morning his temperature was 102.8°, but the pain was worse and and his elbows considerably swollen. At 7 p. m. his temperature was 103° F., the pain intense, and his heart commenced to fail. Sponge baths were continued, and morphine sulphate, one-fourth grain, was ordered.

On November 23 his condition showed no improvement, and he was transferred to the British hospital, Montevideo, Uruguay, where he died on the morning of the 24th, of myocarditis, complicated with broncho-pneumonia, the result of gonorrheal septicæmia. No postmortem was held, as the burial had to take place immediately, the ship being under sailing orders.

U. S. S. IOWA.

(*Note.*)

C. P. KINDLEBERGER, *Surgeon, U. S. Navy.*

Casualties caused by the bursting of a 12-inch gun.—While at target practice on April 9, at 12.08 p. m., the left 12-inch gun in the forward turret burst, outside the turret, and large fragments penetrated the forecastle deck, main deck, and berth deck. Two men were instantly killed by these fragments, while another man died within an hour while undergoing a conservative amputation of the thigh near the hip-joint. Four men were wounded by wreckage. Those killed were greatly lacerated and received compound, comminuted fractures affecting various bones.

U. S. S. WHEELING.

(*Note.*)

RAYMOND SPEAR, *Surgeon, U. S. Navy.*

Fish poisoning.—On January 14, 20 men were poisoned by eating a fish caught by one of the ship's company off Leone, Tutuila. The fish is called by the natives "Mu;" it is also known as "Mumae." The natives are aware of its poisonous qualities and do not eat it.

The men were affected in proportion to the amount of fish they ate, and also in proportion to their resistive powers. The first symptoms appeared from one to two hours after ingesting the fish. The abdomen became distended so that the men were compelled to loosen their trousers. Weakness, associated with vertigo, then became a prominent symptom. Violent pains made their appearance in the abdomen and calves of the legs and some of the men vomited. The pains in the abdomen and legs were so severe that it was necessary to give one-half grain of morphine hypodermically before relief was obtained in several cases. The intensity of the poison was very severe, the men in most cases being completely prostrated, and they recovered their strength very slowly.

The effects of the poison were felt from four to six weeks. As the acute symptoms subsided the effects of the poison became very apparent on the muscular and nervous systems and on the digestive tract. In all cases there was muscular weakness, due to a direct depressant action on the muscular system, and the men in some cases could only walk a short distance before their muscles refused to act. The heart muscle was likewise depressed, and the pulse rate, which at first was not much affected, with the absorption of the poison became rapid and easily compressible. One man's pulse reached 160 per minute and continued over 100 per minute for six weeks. The nervous manifestations were confined principally to peripheral neuritis, evidenced by burning, tingling, and formication. Hyperæsthesia was present in the legs of some of the men affected. Loss of sensation was not observed in any case.

A peculiar symptom was the "burning" induced by the application of water to the skin and mucous membranes; the eyelids in some cases "burned," and the urine "scalded" on being voided. One man described his act of urination as passing "scalding water;" the fæces also burned when passed, and in some cases there was severe tenesmus.

The digestive systems of the men remained out of order for some time. Diarrhea or constipation, usually constipation, was the rule. The stomach, as well as the intestines, appeared to act as if partially paralyzed.

All the men recovered and were restored to duty except one, who was transferred to the United States naval hospital, Mare Island, Cal.

This man recovered from the acute symptoms, but did not regain his strength; his stomach remained non-retentive and he was troubled with constipation. A change of climate was thought necessary for his recovery.

The ship's cat ate some of the fish and suffered with the same symptoms as did the men. The dose of poison was larger in proportion than it was with the men. The muscles remained in a state of paralysis for two weeks, during part of which time the bladder was unable to expel the urine. The return of muscular power was gradual. At present, six weeks after poisoning, the muscles are weak and at times do not coordinate. At no time did the animal lose consciousness or have convulsions.

U. S. S. DETROIT.

(*Note.*)

JOHN B. DENNIS, *Surgeon, U. S. Navy.*

Rheumatismus articularis acutus.—A coal passer was admitted to the sick list on April 17. The right shoulder, both knees, and ankles were progressively involved; also the hips to a slight extent. On April 21 this patient was transferred to the Hospital Britannica, at Buenos Ayres, Argentina. On April 23 the patient was operated on by Doctor O'Conor. He performed his radical operative treatment for the cure of acute rheumatic fever. Doctor O'Conor regards acute rheumatism as an infection, and opens and treats joints accordingly. Both kneejoints were opened, irrigated with normal saline solution under aseptic conditions, and a rubber drainage tube was inserted. Both ankles were incised in three places, the joints opened, and gauze drainage inserted. The right shoulder was opened and drainage inserted. All medical treatment was discontinued. There were no bad effects from the operations. The man developed slight bronchitis from the ether. The kneejoints were washed out daily after the operation. On the third day after the operation the man was able to move all the joints that were operated upon. On the fifth day after operation the drainage was removed from the knees.

On May 29 this man was discharged to duty and returned to this vessel. At that date his joints were all in excellent shape and his general health was very good. On June 5 he was readmitted with slight fever and some pain, practically all muscular. His joints and muscles were massaged three times daily, and he was given sodium salicylate. His general physical appearance was excellent. He was kept under observation until June 29, when he was discharged. At that time there was no involvement of his joints and he had gained about 20 pounds in weight.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

J. S. TAYLOR, *Passed Assistant Surgeon, U. S. Navy.*

Neuritis optica.—The patient was admitted with amaurosis. Examination showed that the pupils were fixed in wide dilatation, and that while the vision in each eye separately was almost nil he could count fingers and make out figures in a large picture on a weekly paper. Examination also showed that color perception was largely lost and that the eye was hypermetropic. Ophthalmoscopic examination showed atrophy. The patient had exaggerated patella reflex and ankle clonus. The diagnosis of double optic atrophy was confirmed later by an expert, who gave a very unfavorable prognosis as to recovery of vision. The patient was given strychnia in increasing doses till at the end of a month he was taking seven doses daily of one-thirtieth of a grain. He was also given iodide of potash, 30 grains three times a day, though there was no specific history in the case.

About three weeks after admission the iris partially recovered its mobility, but in a few days became again fixed in dilatation.

The history is as follows: Some few months ago while boxing on deck the patient fell and struck the back of his head, remaining unconscious about fifteen minutes. A few days later he began to feel a vague general malaise and became unable to work. He was sent to a naval hospital and soon after had an attack of facial paralysis of the right side. Acuteness of vision now began to fail, and after slight temporary improvement gradually decreased until it reached the low grade already described. The atrophy is ascribed to a minute fracture at the base of the skull, with hemorrhage, at the time of injury to the head.

The patient had been a great consumer of tobacco in the form of cigarettes, but gave up the habit absolutely on admission to this hospital.

The patient was discharged from the service almost totally blind.

UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD.

(*Note.*)

J. T. KENNEDY, *Passed Assistant Surgeon, U. S. Navy.*

Parotitis epidemica.—The connection between the city of Annapolis and the academy grounds through the servants renders the midshipmen peculiarly liable to infectious diseases, as the mess attendants live with their families and transmit whatever infection may be prevailing in the city.

One of these mess attendants appeared on November 27 with mumps, and a general epidemic followed, that lasted through the winter and resulted in a total of 70 cases.

No doubt many midshipmen were ill on the same day, but concealed the fact in order to attend the annual game of football with West Point in Philadelphia, thus distributing the infection far beyond the original focus and preventing possible restrictions of the disease.

The day following the game 3 cases were admitted, and several on each successive day till 15 in all were in quarters, when an interval of two weeks succeeded. Just before the first cases were released from quarantine a second number presented themselves. Successive crops appeared at varying intervals up to March 1, since which date no new case has developed, and, the period of incubation being long past, the epidemic is presumably at an end for this time.

Of the midshipmen affected the first class contained 3, the second class 21, the third 17, and the fourth 29, a total of 70.

The course of the disease in many of the young men was marked by high temperature, frequently running to 105° F. and accompanied by active delirium in which the dominating suggestion was fear of impotence, due no doubt to the frequent complication of orchitis and the teasing of comrades.

Epistaxis occurred in 10 cases, usually in combination, with high temperatures, bringing relief to headache and delirium. Only one case required assistance, the hemorrhage being profuse, but it was easily controlled by plugging the posterior nares. The most troublesome complications was orchitis, which accompanied 24 cases. This usually appeared toward the end of the first week, when all the acute symptoms had subsided, and resembled an entirely new infection in its constitutional symptoms. While atrophy of the affected testicle was the rule, many shrinking to the size of olives, the organ seemed to regain its normal size in a few months, and no case seen has remained permanently atrophied.

Two cases had the disease located in the submaxillary instead of the parotid gland, but aside from having normal termperature they were not different in character and both were complicated with orchitis.

No dangerous complications appeared in any case and all recovered.

U. S. S. DALE.

(*Note.*)

F. M. BOGAN, *Passed Assistant Surgeon, U. S. Navy.*

Membri clades.—While warping the ship into dock at the Norfolk Navy-Yard on the 27th of November, 1903, a gunner's mate, first class, was paying out a line leading from the after starboard chock. It was very cold and the line was stiff. A kink in the line caught his arm and his left hand was jammed between the line and cleat. The engines were backed, but before anything could be done his left hand was entirely severed from the arm and dropped on deck. It was torn off at the carpo-metacarpal joint. The patient was moved at once to the *U. S. S. Olympia*, which was lying near, where amputation was performed.

U. S. S. DON JUAN DE AUSTRIA.

(*Note.*)

WILLIAM SEAMAN, *Assistant Surgeon, U. S. Navy.*

Unusual sequelæ of dengue.—Before the return of the ship to Cavite, early in December, dengue was mildly endemic on shore and prevailed extensively on board.

It did not differ in its clinical characteristics from other endemics met with in other localities and at other times throughout the East, save in the high temperatures noted, 106° F. being common, and was borne in some instances for a day or more without any special discomfort.

The interesting feature of the endemic, however, was that after convalescence was established and the men were sent to duty, fully half the cases developed general jaundice, with low pulse, anorexia, malaise, constipation, and short periods of high temperature (104° to 106° F.), which developed at intervals and subsided quickly. Patients were all placed on sulphate of magnesium and phosphate of soda, and the icterus slowly disappeared with amelioration of other symptoms.

So far as I was able to learn, such manifestations have not been observed in Cavite or on the flagship, and there is no mention of icterus in Manson, or other text-books at hand, as a sequel of dengue. Jaundice, early in dengue, has been reported by southern observers as obscuring the diagnosis from yellow fever.

U. S. S. MACHIAS.

(*Note.*)

A. W. BALCH, *Assistant Surgeon, U. S. Navy.*

Denguis (?).—Since arriving at Djibouti, French Somaliland, there have been a few cases of a disease the character of which has not been determined. The onset is sudden, much like dengue, and the other symptoms are severe pain in back and limbs, headache, sense of tension in the eyes, and temperature of 102° to 103°. On the second day the temperature falls to about 100° and the eruption appears. Pain then disappears, except that some headache may remain. By the third day the eruption is full-blown and the temperature becomes normal. The eruption fades during the next four or five days. It is discrete and papular, and appears first on the forehead and chest. Later the whole body, including the palms and soles, is affected. Two cases, both officers, and the first seen, followed this typical course, and in each, ten days later, the headache, body pain, and tension in eyes returned for a day. Several other cases appeared, but none followed the above course to the end. One case showed the eruption without other symptoms. Several complained of the general body pain and a few had only a slight attack of fever for two days. Ashore it was found that new arrivals in this port occasionally suffered from such attacks, and the trouble is variously attributed to dengue and to exposure to the sun.

U. S. S. MONADNOCK.

(*Note.*)

CHARLES M. OMAN, *Assistant Surgeon, U. S. Navy.*

Hepatitis chronica (*suppurative*).—A sailmaker's mate was transferred to the Shanghai general hospital on October 23 from the U. S. S. *El Cano* with the diagnosis of appendicitis. He was operated upon next day and an abscess in the cæcal region evacuated. Temperature continued hectic. On November 1 the liver was aspirated at two different points, but no pus was found. On November 6 the liver was aspirated again and pus was found, abscess cavity evacuated, and drainage tube inserted. November 10 he began to pass blood per rectum. November 15 patient died. Autopsy showed the following conditions:

The liver markedly enlarged and about one-eighth of the right lobe destroyed by the abscess. Marked adhesions all around the cæcum and the cavity formed filled with pus. There were two perforations of the cæcum into this cavity. Appendix enlarged, injected, and bound down by adhesions. The walls of the large intestine thickened, covered with a thick layer of pus, and at least a dozen ecchymotic spots were found, some as large as a 10-cent piece, where rupture of a small vessel had occurred. Heart, lungs, and kidneys practically normal except the usual conditions resulting from the acute illness. The patient had never given any history of dysentery and the symptoms in the beginning of the illness did not indicate dysentery, but no doubt this was the primary affection.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

CLARENCE F. ELY, *Assistant Surgeon, U. S. Navy.*

Tuberculosis of skin (*lupus vulgaris*).—The patient is a chief machinist; white; single; aged 23 years; father, mother, two brothers, and two sisters alive and well; denies having had any of the diseases of childhood, and has no family history of malignant or tubercular disease. Present affection began in July, 1902, and is attributed by the patient to an infection received at the island of Martinique while escaping from the eruption of Mont Pelee, during which he was forced to wade through stagnant water containing a number of dead bodies in various stages of decomposition.

He was admitted to the United States naval hospital at San Juan, P. R., in June, 1902, suffering from heat prostration, and while there his attention was directed to a small pimple which appeared just above the root of the penis and annoyed him by its itching. He paid no attention to it until September, 1902, when it began to increase in size and exuded a small quantity of clear serum. Patient reported at sick bay, and the pimple was cauterized by the pure silver nitrate stick and dressed antiseptically. By October it had become quite painful and showed a tendency to spread. It was again cauterized with the silver nitrate stick and dressed with calomel and iodoform until November 14, 1902, when he was again ordered to the West Indies. He remained there until February, 1903, when, after various remedies had been tried, including pure nitric acid, bichloride of mercury washes, dusting powders, etc., without any relief, he was ordered to the naval hospital, New York, N. Y., where he reported on February 20, 1903, with a diagnosis of syphilis primitiva. The hospital ticket stated that patient had been under specific treatment for some time. Careful examination and observation, however, failed to demonstrate any signs of this disease, and it was therefore excluded.

On admission the part was shaved, cleansed, and dressed antiseptically. At this time the lesion consisted of an ulcer about 1½ inches in length by three-fourths of an inch in width. The edges of this ulcer were irregular in outline and the floor covered by pale œdematous granulations, except here and there where an island of necrotic tissue, covered by a yellowish exudate, existed. After various astringents and antiseptics were tried in the shape of bichloride of mercury, silver nitrate, balsam of copaiba, bismuth subgallate, boric acid, and aristol, the actual cautery was used, the ulcer being thoroughly burned. For a time following this procedure the sore appeared to do well, but soon it began to show evidences of a fresh outbreak and spread rapidly. At this time applications of warm normal salt solution and absolute rest in bed were tried with excellent results, and in two weeks the ulcer had nearly healed. Its obstinate character, however, was again evinced by a fresh outbreak, during which it appeared to be worse than ever. On June 11 the patient was anæsthetized, the ulcer thoroughly curetted and cauterized, followed by the application of warm normal salt solution three times per day. The result has been most satisfactory, granulations rapidly developing in the floor, followed by cicatrization, until at present the sore is almost entirely healed and shows no sign of a retrograde change.

The case has been one of great interest, not only in view of its obstinate character and resistance to treatment, but also from the standpoint of diagnosis. In all probability it was one of lupus vulgaris, syphilis having been excluded by the absence of any secondary symptoms, such as glandular enlargement, mucous patches, or eruption. Epithelioma has also been excluded by the age of the patient, absence of family history, slow progress, and absence of enlargement of neighboring glands.

Microscopic examination showed the presence of tubercles in the tissue, which was removed. In addition, the gross macroscopic appearance of the ulcer, the edges of which were lined by crusts; the pale œdematous character of the granulations, with here and there a small nodule of necrotic tissue, which resisted healing; the typical sensation imparted to the hand using the curette, caused by the shelling out of the tubercular areas and the marked tendency to partial healing, followed by subsequent retrogression, all point to the diagnosis of lupus.

Infectious diseases treated during the quarter ending June 30, 1903:

Disease.	Number of patients.	Discharged cured.	Remaining.
Scabies	38	26	12
Parotitis epidemica	91	81	10
Morbilli	13	13	....
Erysipelas	2	2	....
Diphtheria	1	1	....
Scarlatina	9	6	8
Varicella	1	1	....

Scabies.—In the treatment of this cutaneous affection sulphur ointment was used. One application daily, for three days, preceded by hot baths, was found sufficient to destroy the parasite. In the majority of these cases the lesions were referred to the lower limbs and external genitalia.

Parotitis epidemica.—This disease, which commenced at the navy-yard in November, 1902, prevailed with unusual severity during this quarter. Of the 81 cases, 52 showed involvement of both parotid glands; 29 showed involvement of one gland; in 16 cases the submaxillary was involved; and 38 cases were complicated by orchitis, the left testicle being in all cases the gland affected, probably due to the greater predisposition of that organ to congestion owing to the absence of valves in left spermatic vein. The average duration was five days.

Morbilli.—The 13 cases of measles were of usual character, barring two, in which obstinate vomiting marked the course of the disease. This was controlled by the restriction of all food, judicious use of cracked ice, and cocaine in one-sixth grain doses.

Scarlatina.—During the quarter 9 cases were admitted for treatment. Of these 8 were of ordinary severity, and one of the severe anginose type, with high temperature, great restlessness, and signs of extreme toxemia. Three cases were complicated with post-scarlatinal nephritis, urine containing granular casts and albumin. These, however, cleared up under milk diet and rest in bed.

Desquamation was closely watched, and it can be safely said to have been incomplete in every case until the end of the fourth week, the palms of the hands and the soles of the feet being the last surfaces to become thoroughly clean. These patients were all quarantined five weeks.

UNITED STATES NAVAL HOSPITAL, SITKA, ALASKA.

(*Note.*)

HUGH T. NELSON, JR., *Acting Assistant Surgeon, U. S. Navy.*

Appendicitis.—The patient, a sergeant, United States Marine Corps, aged 31 years, was admitted April 7. He was always in good health up to June, 1902, when he had an acute attack of appendicitis from which he made a good recovery without operative interference. Following this he enjoyed excellent health up to the time of his present illness. This began one-half hour before admission to the hospital. About 3 o'clock in the morning he was awakened out of a sound slumber by a diffuse cramp-like abdominal pain, accompanied with nausea and vomiting. After a short time the pain centered around umbilical region and later localized over appendix. On admission, temperature was 98.2°, respiration 26, pulse 62, urinalysis negative.

Physical examination: Body well nourished and muscular; mucous membranes of normal appearance; tongue moist and slightly coated; respiration entirely thoracic; heart, lungs, liver, and spleen normal; extreme rigidity and diffuse tenderness of abdomen, and slight pressure over appendix gave excruciating pain.

He was put to bed and given high enema of soap suds, magnesium sulphate, and linseed oil, without result. Complained of such agonizing pain that morphine sulphate, one-third grain, was given hypodermically and ice bag put to abdomen. At 9 a. m. temperature was 103.2°, respiration 20, and pulse 90.

Next day the temperature ranged between 102° and 103° F. Pulse continued around 100°, and was of fair strength. There was less rigidity of abdomen; the right rectus, however, was still markedly contracted, and the entire right side of abdomen very tender. Patient was markedly jaundiced and had a septic appearance.

Operation was performed at 3 p. m. Temperature at time of operation was 103.4°, respiration 25, pulse 110. A 5-inch incision was made and abdomen opened by the intermuscular method. General cavity was walled off from the infected area with gauze pads. Digital examination revealed a large mass in the right iliac fossa, and the adjacent viscera was covered with a sero-fibrinous exudate. By careful manipulation and with considerable difficulty the mass was lifted into the wound. It was found to consist of the cæcum, lower ascending colon, the appendix, and the last few inches of small intestine, all bound together by old and recent adhesions into a conglomerate mass. Much difficulty was encountered in freeing the appendix, which was enlarged to about the size of an adult thumb, and filled with foul-smelling, dark-colored pus. Much hemorrhage followed the breaking up of adhesions, and the small intestine was unavoidably lacerated, owing to the firm connections between it and the appendix. This wound was immediately closed by Lembert suture. The abscess ruptured during manipulation, but its contents were carefully sponged away and did not come in contact with the surrounding tissues. The appendix was ligated close to its junction with cæcum and the stump cauterized with carbolic acid. Before replacing the viscera they were subjected to a thorough irrigation with hot salt solution. After introducing an iodoform gauze drain the abdomen was closed in the usual manner.

Recovery was uninterrupted. The skin sutures were removed on the seventh day and drainage discontinued on the ninth. The drainage opening had entirely closed on April 30, twenty-two days after the operation.

Owing to the unfavorable surroundings, the absence of trained assistants, and the rather unusual complications encountered, and, moreover, it being the first appendectomy performed at this hospital and in the town of Sitka, this case is of some interest. Without surgical intervention it would undoubtedly have gone on to a fatal termination.

CONCLUSION.

In concluding this report attention is invited to the increase of work, incident to the growth of the Navy, performed by the clerical force of the Bureau. The number of clerks has not been correspondingly increased, and the business has been kept up to date with difficulty. Commendation is due the civilian force for its faithfulness and attention to duty. The work of assembling and distributing medical and surgical supplies from the naval laboratory at Brooklyn, N. Y., has largely increased, but the energy and efficiency of the management of this work has prevented delay in its prompt dispatch.

A comprehensive review of the work for the year shows a high state of efficiency in the medical establishment, and the Bureau notes with satisfaction the record made of service well done in conformity with the traditional high standard of the medical corps of the Navy.

Very respectfully,

P. M. Rixey,
Surgeon-General, U. S. Navy.

The Secretary of the Navy.

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REPORT

OF THE

SURGEON-GENERAL, U. S. NAVY,

CHIEF OF THE BUREAU OF MEDICINE
AND SURGERY,

TO THE

SECRETARY OF THE NAVY.

1905.

WASHINGTON:
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Navy Department.

REPORT

OF THE

SURGEON-GENERAL UNITED STATES NAVY.

Department of the Navy,
Bureau of Medicine and Surgery,
Washington, D. C., October 1, 1905.

Sir: In obedience to instructions contained in the Department's letter of July 14, 1905, I have the honor to submit a report of the operations of this Bureau for the fiscal year ending June 30, 1905, together with a set of annual estimates for the fiscal year 1907–8. The report shows the condition of the naval-hospital fund and contains information and recommendations concerning the Medical Corps, the Hospital Corps, the naval hospitals, hospital ships, report on surgical operations at naval hospitals; recommendations as to camp for tuberculous cases, barracks for recruits, dentists and women nurses for the Navy; report on navy pensions and on the United States Naval Medical School; recommendation for membership of a medical officer on the general board, and for the exercise of an advisory function by the Bureau in sanitary matters connected with constructions intended for use as living quarters for the enlisted personnel; special sanitary reports, medical and surgical notes, and a statistical report of the health of the Navy and Marine Corps for the calendar year 1904.

ESTIMATES.

The estimates for 1907 are based upon the manifest needs of the medical establishment in the present stage of development of the Navy, and, in addition, includes such increase over the estimates for the preceding year as is required to meet the growth of the service. The organization of a service of fleet auxiliaries to be manned by a personnel not forming a part of the regular enlisted force of the Navy creates a new demand for medical supplies to be furnished. Every increase of the personnel of the Navy and of the Marine Corps causes a corresponding increase in the expenses of the Medical Department, and for this provision must be made. The inadequacy of various naval hospitals at important stations to accommodate the sick of the service at its present authorized strength, and the desirability of being prepared for exigencies incident to expansion under war conditions, together with the necessity for modernization and renovation of antiquated and insanitary buildings, compels the submission of estimates to place them in a satisfactory condition. Among the hospitals needing rehabilitation only such are included in the estimates of this year as most urgently require attention under present service conditions these being the one at Norfolk, Va., and the one at Pensacola, Fla. The new naval hospital at Canacao, P. I., urgently needs a permanent supply of potable water. An artesian well sunk at the navy-yard, Cavite, P. I., has been found to furnish an abundant quantity of potable water for the use of the navy-yard, and this gives assurance of similar success from an artesian well to be sunk on the hospital grounds. An estimate for this work is submitted.

NAVAL-HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand July 1, 1904	$265, 258. 71
Transferred to credit since July 1, 1904	510, 891. 39
Total	776, 150. 10
Expended since July 1, 1904	295, 635. 59
Balance on hand June 30, 1905	480, 514. 51

CHANGE IN TITLES OF NAVAL LABORATORY, M. & S. STOREHOUSES, AND NAVAL MUSEUM OF HYGIENE AND MEDICAL SCHOOL.

As being more appropriate and distinctive of the character of the work being performed, and for uniformity in nomenclature, the Bureau requested that the titles of the departments heretofore known as naval laboratory, Brooklyn, N. Y., M. & S. storehouse, Mare Island, Cal., M. & S. storehouse, Cavite, P. I., and Naval Museum of Hygiene and Medical School be changed, respectively, to naval medical supply depot, Brooklyn, N. Y., naval medical supply depot, Mare Island, Cal., naval medical supply depot, Cavite, P. I., and Naval Medical School. On May 26, 1905, the Department approved the request and directed that the change in titles be made from that date.

X-RAY OUTFITS.

The increasing value of the X-ray for diagnostic and therapeutic use has caused the Bureau to begin the replacement of the machines provided for the various naval hospitals in 1898, now obsolete, with more effective apparatus capable of accomplishing work of the highest degree of efficiency.

STANDARD HOSPITAL SUPPLIES.

Progress has been made by the Bureau in standardizing the various articles of mess equipage and other supplies used at naval hospitals and in the medical department. While attaining thereby articles of a higher grade, it is believed that economy will be secured through the practicability of wholesale purchase under contract. In addition, requisitions will be simplified and clerical work diminished.

MEDICAL CORPS.

At the beginning of the calendar year there were 36 vacancies in the Medical Corps; 11 remaining from 1904, and 25 additional allowed by the act of 1903 as an annual increase for each year up to 1908. During the fiscal year now ended there have been 2 retirements for age, 5 resignations, 3 retirements for disability, 3 deaths, and 17 appointments as assistant surgeon. At the close of the fiscal year there are 38 vacancies to be filled. There is need for the continuous service of every medical officer, and the invalidism of several (always to be expected) has occasioned much inconvenience. Two medical boards, one at Washington, D. C., and the other at Mare Island, Cal., have been in constant session for the examination of candidates for appointment. Many inquiries for information regarding appointments have been received, and every endeavor to encourage applicants to appear for examination has been made. Of those examined, 13 were found physically, and 20 professionally, disqualified, and 17 were accepted as qualified for appointment as assistant surgeon. The vital importance of safeguarding the health of the personnel and giving assurance of skilled medical aid to those of the service who may be sick or wounded makes it necessary to maintain a reasonably high standard of professional qualifications in the examination preliminary to appointment. The leading medical schools of the country prescribe a curriculum covering a period of four years of professional study before issuance of a degree in medicine, and a due regard for the best interests of the service requires that the candidate should have further training, either in hospital service or in actual practice of his profession, for a term of about one additional year. The expense of such preparation, borne as a personal cost, is estimated at $6,000. The difficulty experienced in the effort to keep the Medical Corps recruited to its allotted strength suggests the belief that the inducements held out to prospective qualified and desirable candidates to enter it are insufficient.

It appears that the Medical Corps of the Army and the Public Health and Marine-Hospital Service are regarded by the qualified young men of the medical profession as offering more attractive avenues for entrance. It is a generally accepted belief that there are personal sacrifices and privations involved in a naval medical career which are not usually a part of service in the other two medical services of the Government whose ranks are recruited from the same civilian sources of supply. The Medical Corps of the Navy is placed at a disadvantage in the mind of a prospective candidate by reason of knowledge of the fact that the assistant surgeon of the Navy receives, when on shore duty, 15 per cent less than his army colleague. The removal of this apparent discrimination against the Medical Corps of the Navy will remove one deterrent element considered a bar to successfully recruiting the corps. Coupled with this it is desirable for efficiency that provision be made for a reasonable flow of promotion to relieve the condition of stagnation now existing in the three upper grades of the corps. As illustrative of this condition, it is noted that the senior officer on the list of surgeons has already had twenty-nine years of service as a commissioned officer and has reached the age of 55 years, and also that the retirements for age to occur in the corps are only 1 in 1906, none in 1907, and 1 in 1908. These facts give point and emphasis to the Bureau's recommendation that an increase in the grades of medical inspector and medical director be allowed.

INCREASE IN GRADES OF SURGEON, MEDICAL INSPECTOR, AND MEDICAL DIRECTOR.

An increase in the total number of officers in the Medical Corps now authorized by law is not contemplated, but a careful study of the needs of the service has convinced the Bureau that reapportionment of the numbers in the three upper grades should be made. The number of surgeons should be increased 15, making 100 surgeons in all, in order that a sufficient number of officers in this grade may be available for the additional demands incident to commissioning ships now nearing completion. It is recommended that this additional number be secured by an increase of 5 each year for three years. Such progressive increase will meet the service demands as additions to the fleet are made and as the personnel is successively enlarged to man the new vessels. It is further recommended that the number of medical inspectors be increased to 25 and the number of medical directors to 20. No provision for increase in these grades was contained in the personnel bill of 1898, which made substantial increase in the corresponding grades of commander and captain in the line—in the former from 85 to 103 and in the latter from 45 to 68. An increase in the three lower grades of the Medical Corps was authorized by Congress in 1903, but the number of medical inspectors and of medical directors remains the same in 1905 as it was in 1885, when the Medical Corps numbered 171, and with a personnel in the Navy and Marine Corps increased from 16,000 to 44,000. In 1883 the number allowed in each of these grades was a little less than 9 per cent of the corps; in 1905 the percentage has fallen to .6, and in 1908, when the Medical Corps reaches its authorized strength, it will be further reduced to 4 per cent. For comparison, it is noted that the percentage of line officers in the grades of commander and captain now authorized by law is for the former 11 and for the latter 7. It has been necessary, in response to the demands for the detail of medical officers, to continue to draw upon the senior ten numbers in the grade of surgeon for assignments that properly belong to the medical inspector's grade. There are now seven divisions under flag officers, to each of which a medical inspector should properly be assigned, but with the number now available for sea duty this is impracticable, having in view needs elsewhere. In addition, there are important stations beyond seas which require officers of this grade. This, together with the need at shore stations, on boards, and elsewhere, creates a necessity for an increase in this grade. The increase in the grade of medical director recommended will give only a just proportion of officers of this rank, with the single exception of the Surgeon-General, the highest attainable by a medical officer, and allow proper assignments to important naval hospitals, on examining and retiring boards, and for special duty where officers of rank and long experience in service conditions are required.

ACTING ASSISTANT SURGEONS.

During the fiscal year 6 of the acting assistant surgeons have qualified by examination for appointment and have received commissions as assistant surgeons in the Navy. There remain 6 vacancies in the number authorized by law, and inasmuch as there is need for every one of the 25 to meet service demands, which could not otherwise be met without serious embarrassment, it is the desire of the Bureau to have every vacancy filled. In pursuance of the policy of keeping the list of acting assistant surgeons as a kind of waiting list for worthy candidates intending to qualify for a commission in the regular establishment, original appointments are now made only after physical and professional examination by and recommendation of the board of medical examiners of applicants within the age limits prescribed for entry as assistant surgeon in the United States Navy. These medical officers have been continuously and usefully employed, both ashore and afloat. Much of the recruiting duty, particularly that performed by traveling recruiting parties, has been done by them, and despite a measure of inexperience with service conditions the duty required of them has been creditably performed.

INCREASE IN NUMBER OF PHARMACISTS.

The law now provides for the appointment of 25 pharmacists. The Department has approved the recommendation of the Bureau that this number be increased to 50, and the House Naval Committee, at the last session of the Fifty-eighth Congress, favorably reported a bill (H. R. 18567) including in its provisions the desired increase in this grade. The bill, however, failed of consideration. In the opinion of the Bureau this number is none too large to properly meet the needs of the service, which require that pharmacists should be available for assignment as follows: Eight for flagships; 15 for naval dispensaries of navy-yards; 15 for naval hospitals at home and abroad; 1 each for the Naval Academy, the naval dispensary, Washington, D. C., and the Bureau of Medicine and Surgery—a total of 50, without any allowance for sickness. The Hospital Corps should soon be recruited to a strength of not less than 1,000 men, and with this increase in number of pharmacists—the warrant grade of the Hospital Corps—there would be a healthy stimulus to industry and the reasonable hope of ultimate advancement held out to the more ambitious hospital stewards and men of inferior rating having records of long and faithful service. Without such encouragement reenlistment of the most desirable hospital stewards will be doubtful and the efficiency of the Hospital Corps will be impaired. It is most desirable, on the same ground, that there should be authorized the grade of chief pharmacist, with the same rank and pay and under the same conditions as to promotions as are provided for other warrant officers of the Navy. Equality of opportunity now given the boatswains, gunners, carpenters, and warrant machinists of the Navy to attain to the lowest commissioned grade will thereby be established for the pharmacists, and an element of discontent now existing will be removed. The Bureau desires to secure as permanent an organization as may be possible in order to insure for the sick and injured of the Navy an experienced and efficient nursing service, and to the accomplishment of this end it is believed to be essential that greater inducement for continued service in the Hospital Corps should be offered. It is therefore again recommended that the number of pharmacists be increased to 50, and that all laws now existent or hereafter to be enacted relating to warrant officers of the Navy be made applicable to them.

UNITED STATES NAVAL MEDICAL SCHOOL.

It was practicable during the past year to inaugurate the scheme, which the Bureau had long had in contemplation, of extending the facilities of the Naval Medical School to others of the Medical Corps than the newly commissioned assistant surgeons, for whose special training the school was primarily organized. This was accomplished by providing a second or summer session following the conclusion of the regular or winter term. The class of assistant surgeons, composed of 20 officers, was assembled on October 1, 1904. This number was increased to 23 during the first few days of the session. Each one of the class was found qualified, after examination, to receive a certificate of graduation, which the members had the honor to accept from the hands of the President of the United States, on the occasion of the closing exercises held on March 25, 1905, at the National Museum, Washington, D. C. The members of the third class assembled at the school who attained the distinction of securing over 90 per cent of the general average marks for the term are as follows, in order of precedence, viz, H. W. Smith, E. A. Vickery, H. F. Hull, W. A. Angwin, J. L. Belknap, and N. T. McLean.

A few additions of apparatus and laboratory furniture were made to the equipment of the school during the year. The schedule of instruction given was essentially the same as in previous years, the most material change consisting of an extension of the course of study in the bacteriological and chemical laboratories. The work of the instructors has been zealously performed, the discipline of the school was excellent, and the interest of the student officers gave evidence of full appreciation of the valuable opportunities offered. Able and courteously extended assistance in the work of instruction was given to the faculty, as in previous sessions, by distinguished specialists. The Bureau desires to extend its appreciation of the sympathetic cooperation and help of the following professional gentlemen, viz: Lieut. James Carroll, of the Medical Corps of the United States Army; Asst. Surg. Gen. George Tully Vaughan, Passed Asst. Surg. M. J. Rosenau, and Dr. C. W. Stiles, of the Public Health and Marine-Hospital Service; Dr. C. W. Richardson and Dr. J. F. Mitchell, of Washington, D. C.; Dr. Harvey Cushing, of the Johns Hopkins School of Medicine; Prof. L. O. Howard, Entomologist of the Department of Agriculture; Dr. William H. Cogan, dean of the dental school of Georgetown University, and Dr. William A. White, superintendent of the Government Hospital for the Insane.

The second term, or summer course, was attended by 13 officers, ordered from various stations. This class was composed of 2 surgeons and 11 passed assistant surgeons. The summer term covered the period from April 29 to June 24, 1905. The prescribed schedule of exercises and of instruction consisted of the hospital corps drill; laboratory exercises in bacteriology, in chemistry, in hygiene, and in pathological chemistry; military surgery, illustrated by practical work on the cadaver; ophthalmology, medical zoology, vaccines, antitoxins, and their standardization; and a course of clinical lectures by the superintendent of the Government Hospital for the Insane upon various types of insanity. The value of this course of study to the medical officers can hardly be overestimated. It is the purpose of the

Bureau to have a summer course at the school each year, and to direct the attendance of such medical officers as the exigency of the service may allow. The personnel of the Medical Corps is keenly appreciative of the benefits to accrue from the opportunity for professional improvement thereby offered, and a higher degree of efficiency in the medical department may be confidently expected to result.

In addition to the work of class instruction, the laboratories of the Naval Medical School have been employed in important clinical and sanitary investigations of various character. The service has been supplied, as request was made, with culture media needed in dealing with threatened epidemics of infectious diseases on board ship or at naval stations.

MEETINGS OF MEDICAL ASSOCIATIONS.

Through the professional contacts with the civilian profession made possible by the meetings of medical associations, the Medical Corps of the Navy is benefited and protected from the harmful effects of the professional isolation and stagnation to which its specialized services unavoidably expose it and from which it should be most carefully guarded. Upon invitation for the appointment of delegates to represent the Medical Department of the Navy, medical officers have been detailed by the Department, on the recommendation of this Bureau, to attend various meetings as representatives. The associations extending such invitations, together with the delegate or delegates sent to each, have been as follows: (1) Pan-American Medical Congress, Isthmus of Panama, January 3 to 6, 1905, Medical Director J. W. Ross, U. S. Navy (prevented from attendance by sickness); (2) American Public Health Association, Habana, Cuba, January 9 to 13, 1905, Surg. H. G. Beyer, U. S. Navy; (3) American Medical Association, Portland, Oreg., July 11 to 14, 1905, Medical Director J. C. Boyd, U. S. Navy, Medical Inspector H. G. Beyer, U. S. Navy, and Surg. D. N. Carpenter, U. S. Navy.

TRANSPORTATION OF THE DEAD.

The availability of the fund to meet the expenses incident to the transportation of the remains of the dead has enabled the Bureau to comply with the wishes of the next of kin making request for such transportation. The satisfaction secured thereby to the relatives of those deceased in service has been manifest, and the humane consideration expressed by it has been much appreciated. The continuance of the appropriation is fully justified.

The appalling disaster on board the U. S. S. *Bennington* at San Diego, Cal., on July 21, 1905, occasioned by the bursting of a steam boiler, resulted in the death of 1 officer and 65 enlisted men. The expense involved in complying with the many requests made by relatives for transfer of remains of the dead to the various places of residence of the families of the deceased has been incurred at the very commencement of the fiscal year and has left a sum regarded as insufficient for the probable needs of the current year. It becomes necessary, if previous practice is not to be discontinued, for the Bureau to make request for an additional appropriation for the purpose, to be immediately available.

CEMETERIES.

The cemeteries under the cognizance of the Bureau have received due care, and steps have been taken to have each grave not permanently marked supplied with an appropriate headstone. Isolated graves of the dead of the service in domestic, insular, and foreign cemeteries, where neglect has been reported, have been put in good condition under instructions from the Bureau. Those located at Shanghai, China, have received attention and have been gathered in one section of the cemetery grounds on the Bubbling Well road, under the voluntary supervision of Commander D. H. Mahan, U. S. Navy. The Bureau is of the opinion that it would be to the advantage of the service for the Department to place all burial plots and cemeteries used exclusively for the dead of the Navy and Marine Corps under the care and control of the Bureau of Medicine and Surgery, and also for all appropriations made to cover expenses incident to the burial and transportation of the dead, both of the Navy and of the Marine Corps, to be under its sole cognizance.

NAVAL HOSPITALS FOR CHARLESTON, S. C., AND GUANTANAMO, CUBA.

The development of the naval stations at Charleston, S. C., and at Guantanamo, Cuba, make it necessary to again invite attention to the fact that no provision has been made for a naval hospital at either station. The need for a hospital at Guantanamo is more immediate and urgent from the fact that naval vessels are frequently there, and there are no hospital facilities available.

NAVAL HOSPITAL CORPS.

The Naval Hospital Corps was authorized by act of Congress approved June 17, 1898, and has existed as an organization for seven years. During this period much has been accomplished in securing to the service a competent and efficient body of men. The desire of the Bureau has been to secure for service in this corps, which forms a part of the enlisted force of the Navy, men of sobriety, reliability, and intelligent aptitude, and it is gratifying to report the fact that the work and conduct of the corps is commendable. During the past year demands for the detail of members of the corps for duty at naval hospitals, dispensaries, naval stations, marine detachments, recruiting offices, and for service on board vessels in commission have been met with considerable embarrassment, and there should be material increase in the number of these grades to supply the needs of the service. Careful study of the present condition of the Hospital Corps and of the future needs of the service has satisfied the Bureau that in order to place it in efficient condition, and to retain in the service desirable men in the lower ratings for a longer period than one enlistment, it is imperatively necessary to effect a reorganization whereby greater inducements than the law now permits may be offered. It is discouraging to note that very few of the men in the two lower ratings enlist for a second term. At present the corps is composed of 25 pharmacists, 207 hospital stewards, 240 hospital apprentices, first class, and 264 hospital apprentices. The pay allowed by present law for the hospital stewards is $60 per month; for hospital apprentices, first class, $30, and for hospital apprentices, $20. Unless there is a reasonable prospect for advancement with increase of pay for the men, particularly for those in the ratings of hospital apprentice and hospital apprentice, first class, it will be impossible to keep the corps recruited with desirable, experienced, and trained men. The hospital apprentice, first class, represents the trained nurse of the Navy and he, after being qualified for this rating, is not satisfied with the pay given, and usually will not remain in the service unless further promotion before the expiration of the term of his enlistment to the higher rating of hospital steward, with attendant increase of pay, is assured, but will seek the more lucrative employment and greater comforts of life to be found ashore. The result is that the trained men are not held for the service, and under existing conditions it will be impossible to secure permanently for the medical establishment of the Navy a thoroughly competent nursing staff of men.

The pay of hospital stewards having been fixed by the act of Congress organizing the Hospital Corps, the men of this rating are deprived of the benefits of the Executive order of June 26, 1903, increasing the pay of all other chief petty officers of the Navy who have qualified after examination for permanent appointment. Thus placed at a disadvantage as compared with other chief petty officers of the service, hospital stewards are dissatisfied. Moreover, as the number in the grade of pharmacist is limited to 25, the chance of promotion to the warrant grade for any individual is very small. It is apparent that the inducements offered are not sufficient to cause the most desirable members of the Hospital Corps to remain permanently attached to the naval service. Unless reorganization is effected a permanent corps of trained men will not be secured. The number of pharmacists allowed by law is 25, and with this small number there is little hope for the more ambitious and useful men in the lower ratings to secure ultimate advancement to the warrant grade. Moreover, the pharmacists are placed at a disadvantage in reference to other warrant officers of the Navy, as there exists no provision for their promotion to commissioned rank, as obtains for other warrant officers of the Navy. Thus hampered by unsatisfactory provisions of the law, it long since became apparent to the Bureau that it is idle to expect to retain in the Hospital Corps the men who have been carefully trained for service requirements and whose attachment to the service was most desirable and necessary in the care and treatment of the sick. The Bureau, in the two preceding annual reports and on other occasions, has earnestly represented that it was necessary to reorganize and increase the efficiency of the Hospital Corps, and these recommendations have met with the approval of the Department, which has urgently recommended favorable action thereon by Congress. After thorough investigation of the subject, a favorable report was submitted by the Naval Committee of the House on a bill incorporating the recommendations of the Bureau, but it failed of consideration and final action during the last Congress. The necessity for the reorganization of the Hospital Corps, heretofore recommended, still exists, and the Bureau again earnestly recommends that request be made for prompt consideration of this important matter by Congress, as it is vital to the efficiency of the medical establishment of the Navy.

An organization which will meet present needs and permit of ready expansion in the event of war and secure an efficient Hospital Corps for the Navy is, in the opinion of the Bureau, provided for in House bill No. 12646, third session Fifty-eighth Congress, which contains the following provisions: First, that the Hospital Corps of the Navy shall consist of chief pharmacists, pharmacists, chief baymen, baymen, first class, baymen, second class, and baymen apprentices. Second, that the number of chief pharmacists and pharmacists on the active list shall not exceed 50 in all; the chief pharmacists and pharmacists to be appointed by the President and have the status of warrant officers, and that the provisions of law regulating the promotion, pay and allowances, and rights of warrant officers set forth in section 12 of the act approved March 3, 1899, known as the "personnel act," shall extend to and include all chief pharmacists and pharmacists of the Hospital Corps. Also that vacancies in the grade of pharmacist shall be filled from men holding the rating of chief bayman, subject to such examination as may be prescribed by the Secretary of the Navy, and that no pharmacist shall be promoted to the rank of chief pharmacist until he shall have passed an examination as to his mental, moral, physical, and professional fitness, before a board of officers, in accordance with regulations prescribed by the Secretary of the Navy. Third, that as many chief baymen, baymen, first class, baymen, second class, and baymen apprentices shall be enlisted as, in the judgment of the Secretary of the Navy, may be necessary, and that enlisted men of the Navy and Marine Corps shall be eligible for transfer to the Hospital Corps. Fourth, that all necessary hospital and ambulance service at naval hospitals, naval stations, navy-yards, and marine barracks, and on vessels of the Navy and Fish Commission, shall be performed by members of the Hospital Corps, and that the corps shall be permanently attached to the Medical Department of the Navy and shall be included in the effective strength of the Navy and be counted as part of the enlisted force provided by law, to be subject to the rules for the government of the Navy. Fifth, that the pay of chief bayman shall be $70 per month, except when serving under acting appointments, when it shall be $60 per month; for baymen, first class, $50 per month; for baymen, second class, $35 per month, and for baymen apprentices $20 per month, with such an increase on account of length of service as is allowed other enlisted men of the Navy, and that all benefits given by existing law or that shall hereafter be allowed to other warrant officers and enlisted men of the Navy shall hereafter be allowed in the same manner to warrant officers and enlisted men of the Hospital Corps of the Navy.

HOSPITAL CORPS TRAINING SCHOOL.

This school, inaugurated in 1902 at the naval hospital, Norfolk, Va., for the systematic training of the Hospital Corps, has had eight sessions and continues to give much satisfaction. The difficulty encountered in securing a sufficient number of desirable men to supply service demands has made it impracticable to hold men in reserve for the course of instruction at this school except for a brief period. As accommodations available at the naval hospital, Norfolk, Va., are limited, the classes assembled are restricted in numbers to about forty men. The term of instruction extends over four months, and while it is realized that this is entirely too short a time in which to accomplish satisfactory training, it has not yet been possible to lengthen the term. It is intended that a more comprehensive scheme of training shall be commenced as soon as the exigency of the service will allow. The short and incomplete course of instruction now practicable has, however, been productive of much good, and the Bureau is pleased to note the continued interest manifested in the success of the school by the instructors and the appreciation of its advantages as evidenced by the industry and general good conduct of the apprentices under instruction. Upon completion of the course of drill and instruction at the school the men are transferred to the various naval hospitals for further instruction and practical experience in the duties of nursing, and following this assignments to duty on board ship are made. A course of training similar to that followed at the school at Norfolk has been inaugurated at the naval hospital, Mare Island, Cal., but urgent demands for the services of the men assembled on the Pacific coast has so far prevented its orderly continuance. It is hoped that a scheme for the continuance of systematic training for the men of the Hospital Corps after assignment to vessels, devised under the supervision of the Bureau, may soon be put in practical operation and be productive of further improvement. The physical welfare of the men under instruction has been carefully looked after, and free use of appliances provided for athletic exercises has been encouraged. Three hundred and two men have had the benefit of the course of systematic training in the school, making about 40 per cent of the total force of the Hospital Corps.

NEW BUILDINGS UNDER CONSTRUCTION.

(New) naval hospital, Washington, D. C.—This (new) naval hospital, for which appropriation was made by the act of March 3, 1903, and in the deficiency act of March 3, 1905, located on the grounds formerly known as those of the Naval Museum of Hygiene and Medical School, is approaching completion, and will soon be in condition for delivery to the Government by the contractors. Contracts for the separate trades concerned in the installation of interior fittings, including plumbing, heating, lighting, and elevator fixtures in the buildings, were entered into as soon as practicable after the appropriation in the deficiency act became available, and the work is being pushed to completion. It having been determined that the old steam-generating plant in the basement of the United States Naval Medical School building was inadequate to furnish the heat and power required for the new hospital buildings, it became necessary to make provision for the installation of a set of three water-tube boilers of 100 horsepower each, in a suitable power house equipped with a smokestack. In this power house will be located an electric generating set to supply the electricity needed for lighting and elevator services. A handsome approach of granite is being constructed at the entrance to the grounds, and a roadway leading to the hospital building has been

graded, guttered, and macadamized. As the hospital is needed for the proper accommodation of the sick of the station, its completion and equipment for occupation will be expedited as far as practicable. The omission from the original plans of two pavilions on account of insufficient appropriations leaves the establishment inadequate and necessitates the request for an additional appropriation, which is included in the estimates, to complete the hospital.

(*New*) *naval medical supply depot, Brooklyn, N. Y.*—This building, provided for by the naval act of March 3, 1903, has been completed by the contractor and accepted by the Government. An additional appropriation of $9,000 having been made available by the act of March 3, 1905, a contract was entered into with the original contractors, George Vassar's Son & Co., for the completion of the building in accordance with original specifications, from which items had been omitted in the revision made necessary by reason of the insufficiency of the original appropriation to permit of acceptance of their first proposal. From the second contract the item "pipe trench to power house" was omitted, the work having been done by labor from the navy-yard. Appropriation for the erection of metal shelving for this building having been made in the act of March 3, 1905, the work was advertised for and contract entered into August 5, 1905, with the Library Bureau, 316 Broadway, New York, N. Y., the installation to be completed within ninety days. The building, as completed, is as completely fireproof as it is practicable to make it. The building itself is ready for occupation, but the grading and paving of roadway approaches remains to be done. The former title of this building has, by authority of the Department, been changed from "United States naval laboratory" to the more appropriate and significant one of "United States naval medical supply depot, Brooklyn, N. Y." In harmony with this change of name, the buildings at Mare Island, Cal., and at Cavite, P. I., used by the Bureau as supply and distributing warehouses and heretofore called "M. & S. storehouses," have, by authority of the Department, been designated, respectively, as "United States naval medical supply depot, Mare Island, Cal." and "United States naval medical supply depot, Cavite, P. I."

Officers' quarters at the naval hospital, Chelsea, Mass., at naval hospital, New York, N. Y., and at naval hospital, Norfolk, Va.—The construction of two residences for members of the hospital staff at each of the naval hospitals named is in process under appropriations already made. The several houses will be shortly completed and ready for occupation, thereby restoring for other purposes rooms in the hospital building now used as quarters by the junior medical officers.

HOSPITALS.

The necessity for enlargement and rehabilitation of the naval hospitals to meet the needs of the steadily increasing personnel, and to supply adequate accommodations for proper care of the sick, has been represented in the three preceding annual reports, and the importance of the matter makes it necessary to again call attention to it. With the exception of the hospitals at New York, N. Y., and Mare Island, Cal., and those now being constructed at Washington, D. C., at the United States Naval Academy, Annapolis, Md., and at

Canacao, P. I., they are all ill arranged for administration, as well as for the care and treatment of the sick, are defective in design, lacking in many essentials of proper construction, obsolete in type, inadequate in capacity, and require remodeling to adapt them to the demands of modern medical and surgical practice. The improvements in hospital construction since the date when most of the naval hospitals were designed have been as marked as have been the improvements in surgical procedure or in naval architecture, and they can not now be made to conform to hygienic requirements in such buildings without radical changes in plan and in construction. The old hospitals do not compare favorably with the better class of civil hospitals, and are relatively as inferior to them as were the vessels of the Navy in 1885 compared with the best type of vessels of to-day. The just pride felt by the service and by the country in its ships, built and being constructed, can not now be extended to the naval hospital establishments. So far, they have not received the consideration which their importance to the naval service would suggest. The Bureau considers that it is not unwarranted in plainly representing the facts and in asking that the personnel of the service who risk limb and life in the discharge of duty may be allowed, when sick or injured, the benefit of treatment in modern and well-appointed hospitals. Intended for the needs of a small navy, their capacity now under conditions of peace is insufficient to meet the needs of the service, which has grown from about 15,000 men in 1885 to about 43,000 men in 1895, and which may be expected to be further increased. The necessity for greater ward space and in the number of available beds is clearly indicated by the rapid growth in the number of the personnel of both the Navy and the Marine Corps. It is further illustrated by the fact that in the year 1885 the total of admissions to hospitals was 11,828, while in 1903 the total was 22,645, an increase of 10,817 cases under treatment. It is the fixed purpose of the Government that the vessels of the Navy shall be of the most efficient and modern type.

The welfare of the personnel of the Navy demands that the naval hospitals should likewise be modern and adequate. With few exceptions, these hospitals are representatives of a past period, and though admirable in their day they are now archaic. Repairs and minor improvements have been made from year to year as needed, to keep them in as creditable and efficient condition as possible, and they are so maintained; but in the opinion of the Bureau it is poor economy to continue to patch and to make minor repairs, and thus attempt to perpetuate unsuitable hospital establishments. While the work of renovation and extension on a comprehensive plan is immediately desirable, it is thought that its full accomplishment may be gradual, commencement being made at those localities where the need is most urgent, as at Norfolk, Va., and Pensacola, Fla. It is hoped that provision will be speedily made by Congress to enable the Bureau to place the various naval hospitals in a satisfactory condition fully to meet the requirements of the service and the extensive work now devolving on the Medical Corps. It would be ill advised to defer the time for the inception of these important improvements until the Navy has reached its maximum strength and when the necessary work could only be undertaken with greater difficulty and embarrassment to the Medical Department and with detriment to the interests of the sick. The work must be done sooner or later, and, when done, should be thoroughly performed rather than to permit the continuance of an expensive policy of petty patching and improvising to meet exigent needs. A well-digested and comprehensive plan to place each of them on the plane of excellence of modern civil hospitals should be adopted and provision made for its accomplishment if it is intended that the personnel of the Navy and Marine Corps shall receive from the Government as good care and treatment as can be had in hospitals maintained by private enterprise. The establishment and development of new naval stations at home and abroad, especially those at Charleston, S. C.; the training station on the Lakes; at Guantanamo, Cuba; Culebra, West Indies, and Olongapo, P. I.; and the growth and increased importance of the naval stations at Portsmouth, N. H., at Newport, R. I., at League Island, Pa., and at Puget Sound, Wash., make it necessary and proper that the subject of providing proper and adequate hospitals at each of these places be considered. It is recommended that the attention of Congress be invited to the desirability of taking prompt action to meet the need of each locality, the urgency of which is measured by the rapidity with which these stations are being developed.

Naval hospital, Portsmouth, N. H.—This small hospital has a capacity of 27 beds for enlisted men and 3 rooms for officers. Important public works in process of construction at the navy-yard to increase the facilities for repairs and construction, together with the proposed erection on Seaveys Island of a naval prison capable of keeping 1,000 prisoners, make it apparent that the present hospital will be inadequate. The new buildings for the Bureau of Steam Engineering and the extensive shed for stowage of coal will compel abandonment of outbuildings of the hospital, which are essential to its operation, as the space now occupied by them will be within the limits of the new structures. The hospital building is in good repair. It is understood that under the plan of improvement adopted it can be advantageously utilized and is desired for office purposes by the Bureau of Steam Engineering. Increased hospital accommodations to meet the needs of the station will be required, and a suitable site for the location of necessary buildings should be selected and secured. It is not desirable that decision upon the question of location for the new hospital at this station and action looking to its erection be deferred until the necessity becomes acutely urgent. The Bureau is of opinion that there should be provided at this station a modern hospital with a capacity of 60 beds, comprising an administration building, wards, and necessary outbuildings; and the recommendation that Congress be asked to appropriate a sufficient amount to erect such a hospital is again made.

During the year minor repairs to plumbing in the dispensary, operating, and toilet rooms were made, leaky tubes in boiler were renewed, and two rooms were painted. New plank walks at the front and rear of the hospital were laid, and the roof of the boiler house, which was slightly damaged by fire caused by a short circuit in an electric current, was repaired.

An epidemic of enteric fever occurred at the marine barracks, with 22 cases, all transferred to this hospital, and 5 deaths. The infection was imported apparently from Philadelphia, Pa., and contamination of the well used for drinking water resulted from accidental leakage from a fracture in a sewer pipe, caused, presumably, by blasting in connection with new works.

Minor repairs, consisting of new plank walks to front and rear doors of the hospital, a new floor in kitchen, and repairs to the plumbing in the dispensary, operating room, and men's toilet room were made during the year. The boliers also were retubed and two rooms were renovated and painted.

There were 153 patients under treatment in this hospital in 1904, a decrease from the previous year of 112. Of these, 16 were continued from 1903, 119 were discharged to duty, 10 were invalided from the service, 6 died, and 17 were continued to 1905. The daily average of patients was 14.96 and average number of sick days for each 35.79.

Naval hospital, Chelsea, Mass.—This hospital was commissioned in January, 1836, and is a well-preserved, handsome granite structure, well worth continued preservation. Additions to the original building were made in 1864 and in 1901, when an annex to contain kitchen, bath, and lavatory rooms, and water-closets was built. At the same time in 1901 somewhat extensive repairs were made to the main building, resulting in improvements in ventilation, in the heating and lighting, and in the sewerage systems. Compared with a modern hospital, this hospital, in common with other old naval hospitals, presents many deficiencies. Radical changes in the interior arrangements and extensive remodeling will be necessary to make it a satisfactory and modern establishment. The wards are dark and gloomy, without proper conveniences and ward dependencies; the operating room is an unsuitable one for the purpose; no elevator is provided, and in many other features the hospital is lacking in conveniences considered essential. As the hospital reservation is more extensive than is needed for hospital purposes, the Bureau has approved of proposed legislation authorizing the sale of a portion of it, under such restrictions as to terms of sale and commercial use as may be prescribed by the Secretary of the Navy to safeguard the welfare of the establishment and to protect the interests of the sick, provided that the proceeds of the sale be used in remodeling, modernizing, and improving the naval hospital.

Plans for the two residences for medical officers, for which an appropriation was made by the last Congress, are being prepared. The occupation of these residences will increase the available ward space by the extent of the quarters to be vacated.

During the year the roof of the deadhouse was reslated, and those of the large barn and annex were reshingled and flashed with sheet lead. Repairs were also made to the roof and gutters of the main building, the sterilizer building, and the residence of the medical director. It was found necessary to renew the underpinning of the porch of the director's house and the steps leading to the same. The outside of this building was painted, window shades were repaired, and an iron railing alongside the steps built. The iron gates at the entrance to the grounds were repaired, and miscellaneous repairs were made to water pipes, to the sterilizer in the operating room, and to the hot-water boiler. The rooms for sick officers, with adjacent halls, were calcimined, and from the rooms old and insanitary fixtures were removed and replaced by sanitary closets, porcelain bowls, and bath tubs, with open nickeled plumbing. The ambulance and wagons were repaired, the former receiving new tires. The grounds, roads, walks, and cemetery have been cared for and kept in good condition.

There were treated at this hospital during 1904, 523 patients, of whom 49 were continued from 1903. There were 402 discharged to duty, 5 to other hospitals, 55 invalided from the service, 4 invalided on leave, 7 to the hospital for the insane, 5 died, and 45 were carried over to 1905. The average daily number of patients was 46.30 and the average number of sick days for each 32.40.

Naval hospital, Newport, R. I.—The construction of new barracks and the decision to increase the number of seamen apprentices undergoing training preliminary to being drafted to vessels of the fleet to nearly twice that formerly assembled at the Naval Training Station, Newport, R. I., has invited marked attention to the need for larger hospital accommodations at this station to properly meet the requirements of the increased personnel. The capacity of the hospital has previously been barely sufficient, and as it has often been taxed to its limit it is manifest that it will be insufficient for the station. The pavilion for contagious diseases, which always supplies a large percentage of the diseases annually under treatment in this hospital, is especially inadequate, badly arranged, and unsafe. During the year there have been under treatment in this pavilion, at the same time, as many as five distinct types of infectious disease, and their management has been extremely difficult. It may be practicable to have the sick placed in tents, as has been done heretofore, to gain additional beds, but this plan can not be safely followed during six months of the year on account of the harmful exposure incident to the rigorous character of the climate in the colder months of the year. The main building was built under the control of another bureau as the sick quarters for the station, upon plans which were not furnished by the Bureau of Medicine and Surgery, and which did not secure a satisfactory building for hospital purposes. Subsequent to its transfer, under a special appropriation, three pavilions were erected and occupied in 1902. The design of the hospital, thus planned with no fixed purpose of harmony and adaptability of parts, has not proved to be a satisfactory one and has been the subject of much adverse criticism. The pavilion additions are not on the same level as the main building, and were built without cellars and without proper ventilation of some of the wards. The character of the construction was not sufficiently substantial, as has been indicated by the rocking of the buildings during some of the gales which have occurred, to a degree sufficient to cause the plastering to break, as well as by the repairs required.

Having regard to the immediate needs of this important station, as well as to its future requirements, and realizing that there is lack of sufficient available ground to permit of the proper extension of the hospital to the capacity needed, the Bureau does not consider that further additions to it should be made. The necessities of proper hospital administration require that there should be ample surroundings, with plenty of room for location on proper and convenient sites of outbuildings essential to completeness and efficiency, and the Bureau is therefore of the opinion that a new site, preferably not on the island nor in proximity to the War College, should be secured, upon which a well-appointed modern hospital establishment should be constructed. Under present conditions, the medical officer in command is forced to reside in the city of Newport, at a point remote from the sphere of his duty, and the junior officers of the medical staff must live in quarters inside of the hospital. The best interests of the hospital demand that the medical officer in charge should have a residence near by the hospital, and that quarters outside the hospital building should be provided for the junior medical officers. When such residences are available, the space in the hospital now occupied as quarters by medical officers would be utilized to increase the number of beds available for the sick. It is recommended that Congress be asked to make appropriation for a modern hospital at this station and for the purchase of a proper site for the same, and also for two residences, one for the medical officer in command, and the other for a junior medical officer.

Owing to the unsubstantial character of the workmanship in this hospital, numerous repairs have been necessary. The brick wall of the areaway leading to the basement of the main building was rebuilt and new stone steps and coping were put in place. A concrete pathway was laid on the north side of the main building and back of the ward wings. The slate roof of the infectious-disease building was repaired, and the plastering of this and of the main building put in good condition. Repairs were made to the engine and pump in the laundry, to the plumbing in the operating room, infectious-disease building, kitchen, and laundry, and all tanks, flush bowls, etc., were given a general overhauling. The fire boxes and ash pits of the main boilers were repaired, and the smoke connections to the chimney changed on account of the poor draft. A new auxiliary boiler was procured and installed. The outside of all buildings, three officers' room, all pantries, and the patients' mess room were painted. Fire escapes were provided for the main and infectious-disease buildings. Thirty-eight mattresses were renovated, and 80 yards of corrugated rubber matting in corridors were renewed. The X-ray machine was repaired, and two large focus tubes and a spark adjuster added to the outfit. The temporary rubberoid pavilion, erected for the accommodation of diphtheria patients, was so damaged by storm that it had to be removed.

During 1904 there were treated at this hospital 502 patients, 45 having been brought forward from 1903. Of these, 383 were discharged to duty, 17 to other hospitals, 62 were invalided from the service, 2 invalided on leave, 5 deserted, 3 died, and 30 were continued to 1905. The daily average of patients was 44.46, and the average number of sick days for each 32.61.

Naval hospital, New York, N. Y.—Of all the naval hospitals this one is in the most satisfactory condition. Its equipment has proven satisfactory, and no overcrowding of its wards during the year has occurred. Its appointments are generally those of a modern and well-equipped establishment. It, however, is inadequate in capacity and does not fully meet the present requirements of the service. The annex for contagious diseases, especially, is not capacious enough for the safe care and convenient treatment of several different types of contagious diseases at the same time. Because of lack of room this annex can not be equipped for isolated and independent control as fully as is desired.

The completion and occupation of the new building for the naval medical supply depot places the building formerly known and used as the "naval laboratory" at the disposal of the Bureau for other purposes. This building, by reason of its style of architecture and of its close proximity to the naval hospital building, should be considered and dealt with as a part of the hospital establishment. By alteration and rearrangement of its interior space and by the introduction of the necessary lighting, heating, and plumbing fixtures, it can be utilized to increase the capacity of the naval hospital to a degree to fully meet the demands for additional hospital space for several years to come. To effect the necessary changes in the old laboratory building to adapt it to hospital purposes, the Bureau recommends that an appropriation be made effective.

During the year a new yellow-pine roof, covered with sheet lead, was placed on the disinfecting room. The plastering in the kitchen ceiling was repaired and the room painted. The frames and fixtures of 150 window screens and 25 door screens were repaired and varnished, and 2 new window screens and 9 door screens of selected oak, covered with bronze wire, were fitted. The cornices, rain leaders, and gutters were repaired and painted. The window sashes of the main building, sun corridor, elevator shaft, and annex were repaired and painted and necessary glazing was done. Two new enameled water-closets and seven enameled wash basins to replace broken ones were put in. The boiler house and coal shed were connected by a covered passageway, and an overhead trolley with coal bucket for delivery of coal in ports of the furnaces was installed. The rear and side brick walls of boiler No. 1 and the arch of the smoke-box were repaired. A concrete conduit 8 inches wide and about 150 feet long was laid between the boiler house and the new Naval Supply Depot for leading steam pipes and return of condensed water to the boiler. In addition, all necessary minor repairs to plumbing and steam-heating plant have been made, together with all necessary carpentering, with repair of iron and wood furniture. The hospital pantry was provided with a new and improved type of dish-washing machine, with necessary wire racks for stowing crockery. A thoroughly modern X-ray equipment was installed. The two residences for medical officers, provided for in the naval act of March 3, 1903, have been built on a suitable site in the hospital inclosure. The grounds and cemetery have been kept in good condition by the hospital force.

There were treated at this hospital during 1904 1,247 patients, 125 of whom were continued from 1903. There were 712 discharged to duty, 35 to other hospitals, 304 invalided from the service, 24 invalided on leave, 9 to the hospital for the insane, 14 died, and 131 were carried over to 1905. The daily average of patients was 110.96, and the average number of sick days for each 32.56.

Naval hospital, Philadelphia, Pa.—After forty years of use this hospital is still in excellent condition, but improvements in hospital construction since it was designed have been such that it is not as satisfactory as the service now demands. In capacity it is inadequate for the growing needs of the naval station and it lacks conveniences which are essential to a naval hospital. The noise, smoke, and dirt incident to the development of commercial interests in its vicinity and the proximity of extensive railway and manufacturing enterprises place it among surroundings which are not for the best interests of the sick. Its remoteness from the navy-yard entails a journey of 14 miles for each round trip of the ambulance, and on account of its inaccessibility from the receiving and other ships and barracks from which patients are received the Bureau is of opinion that a suitable hospital site at or near the navy-yard should be secured and the erection of a modern and well-appointed hospital provided for. The interests of the Naval Home, in the rear of which the hospital conveniently stands, are such that the present hospital should not be abandoned, but remain available for the care of the inmates of the Naval Home, the number of whom may be expected to increase commensurately with the increase of the personnel of the service. The lack of a separate building for the care of contagious diseases is a serious defect in the equipment of the hospital. Cases of a contagious nature have been treated on the third floor of the hospital, but this is impracticable in winter, as the heating system of the hospital does not exend beyond the second floor. There being no elevator, access to the third floor is had only through the corridors and lower wards, and in consequence conveyance of infection to occupants of the lower wards has occasionally occurred. The progressive growth and importance of the navy-yard, with increase of facilities for construction and repair, indicates that it will soon rank as a yard of the first class. This fact, together with the assembling of a large number of recruits on the receiving ships and in barracks at the navy-yard, plainly indicates the necessity for ample hospital accommodations at this station.

During the year repairs have been made to roofs, rain spouts, and filters, and a new sink installed. The steam heating and power plant were thoroughly overhauled and put in good condition. Extensive repairs were made to the plumbing, including the installation of new modern water-closets and urinals in four main wards. The annunciator and call-bell system and the wagon and harness were repaired, and much necessary painting done. An ambulance of the Bureau's new standard was secured, and the old one was repaired.

There were treated at this hospital during 1904, 878 patients, of whom 59 were brought forward from 1903. There were discharged to duty 678; to other hospitals, 8; invalided from the service, 88; to hospital for the insane, 3; deserted, 12; died, 12; and carried over to 1905, 77. The daily average of patients was 56.51, and the average number of sick days for each 23.55.

Naval hospital, Washington, D. C.—The new hospital building at Washington, D. C., will soon be in commission, and the inadequacy of the old building for the needs of the station will no longer be cause for comment. It was contemplated that the old building would be vacated upon occupation of the new, but this is not now practicable. As originally planned, the new hospital was of sufficient capacity, but it could not be so completed under the appropriations made. The original appropriation proving insufficient, an additional sum was requested to complete the hospital, but of this sum only one-third was appropriated at the last session of Congress. The omission from the plans of one pavilion and of an isolation ward was consequently made necessary, and until adequate provision is made in the new hospital it will be necessary to continue to use the old hospital building as an annex. Such use is particularly required for the care of cases of infectious diseases, and will obviate the necessity, frequently presented, therefore, of transferring infectious cases to a civil hospital for treatment. Needed repairs to the building have been made during the year. A circular steam radiator was installed in the upper ward and a new 100-gallon tank in the kitchen. Repairs were made to the plumbing in the east ward, kitchen, laundry, dispensary, and basement. The plastering above the staircase was renewed, new frames provided for attic windows, and new elbows put on drainage pipes from roof. The filter and sterilizer tank in the operating room were repaired. Among other minor improvements may be mentioned the increased mess-room accommodation afforded by reducing the width of the dining-room tables and adding to their number. Repairs to gutters and rain leaders of the hospital were made. The outside of the buildings, the wards, operating room, and staircase were painted.

During 1904 there were treated at this hospital 341 patients, of whom 23 were continued from 1903. Of these 249 were discharged to duty, 40 invalided from the service, 5 invalided on leave, 2 to the hospital for the insane, 11 deserted, 3 died, and 30 were continued to 1905. The daily average of patients was 34.36.

Hospital at the United States Naval Academy.—The Department having decided upon an amount to be allotted from the general appropriation for buildings at the Naval Academy, to be available for the construction of the new naval hospital at that station, it became necessary to materially modify the plans, which had been prepared after most careful consideration of the needs of the station and approved by the Bureau. It was necessary in the final revision, in order to keep the cost within the allotment, to omit from the plans the southeast and northwest isolation wards and the west ward, and also to omit from the specifications the air-vacuum sweeping plant and all kitchen and laundry apparatus. Contract was entered into with the General Supply and Construction Company, 24 State street, New York, N. Y., and the work of construction was begun in March last, under the control of the Superintendent of the Naval Academy. The large increase in the number of midshipmen, the establishment of a school for marine officers, the number of enlisted men of the Navy and Marine Corps on duty at the station and assembled from time to time on the practice ships or on board of visiting vessels, made it urgently desirable that the long-felt need for hospital facilities should be provided as speedily as possible. There are no hospital accommodations for the enlisted men of the station, and the sick requiring hospital care must be transferred to the naval hospital at Washington. Such transfer is always inconvenient, and often impracticable in serious and acute illness. The temporary frame structure built as an annex to the sick quarters has served in a measure to meet the needs of the sick among the midshipmen, but until the new hospital is in readiness for the reception of patients the provision for caring for the sick will be unsatisfactory. The omission of one ward and the isolation wards from the original plans, which the Bureau had approved as adequate to the requirements of the station, will doubtless render it necessary at some future time to complete the hospital by adding the omitted buildings. In planning for this hospital the Bureau had to keep in view the necessity for making provision for two classes of patients—first, the midshipmen and officers, and, second, the enlisted men. This dual arrangement required somewhat more elaborate plans than would otherwise have been necessary, and to secure harmony in material and in architectural features, particularly in the administration building, with other new buildings in the academic group, some extra cost was expected. The hospital now being constructed consists of an administration building, a laundry and power house, and a north, south, and east ward, with connecting corridors and solaria. The contract term for its construction is two years, but it is hoped that it will be ready for the reception of patients before the end of the calendar year 1906.

Naval hospital, Norfolk, Va.—Considerations growing out of the geographical position of Norfolk, Va., on the Atlantic seaboard and the magnitude of naval interests in its vicinity, make it apparent that there should be located here a base hospital of the first class. Vessels in commission frequently rendezvous in the near-by waters of Hampton Roads and are undergoing repairs at the navy-yard. The sick of their personnel add largely to the number sent to hospital from receiving ships and barracks of the naval station. In the barracks at St. Helena there are assembled recruits aggregating from 1,500 to 2,000 individuals. Moreover, on account of the lack of adequate hospital accommodations south of Norfolk the sick from vessels of the fleet in southern waters are frequently transferred to this hospital. The capacity of the hospital, 160 beds, is inadequate for present needs, and, to provide for the progressive increase in the enlisted personnel, accommodations should be increased so as to provide for 300 patients. The site of this naval hospital is admirably adapted to service needs, being conveniently accessible both by land and water. The main building is in appearance an imposing and massive structure built of granite, located in the midst of an ample reservation, with a background of pine forest. The building was erected in 1830, and after the lapse of seventy-five years shows evidences of extensive structural decay, from unequal settling of walls, from exposure to weather, and from old age. Faulty in original design, and lacking in many essentials of a sanitary hospital, it is impossible to adapt it to the requirements of modern medical and surgical practice without radical changes, amounting practically to complete reconstruction. The expense of maintaining in a presentable condition such an old and worn building and preserving it in a state of repair fit for occupation is necessarily large, and after the expenditures required have been made there remains the same ill-arranged, shabby, insanitary, and inadequate hospital. Increase of bed capacity required can only be provided by extension of the building beyond its present limits. In the opinion of the Bureau, it would be economical to renovate and remodel it throughout, and at the same time adequately extend it to meet the needs of the service. For several years past it has been recommended that an appropriation for this purpose be made, and at each succeeding year the necessity for it becomes more apparent.

Other naval hospitals need to be modernized, but none so urgently as the one at Norfolk, because of its prime importance to the service and, also, because of its many grave defects. The improvements in hospital construction since this building was erected have been marked. In no feature is the building up to date. The wards are subdivided into a series of alcoves, making ventilation and ward service difficult. Ward dependencies, considered essential in every modern hospital, are not found, and administrative control and nursing care of the patients is both awkward and unsatisfactory. The plumbing and fixtures throughout the building are old and need renewal. The lavatory facilities are entirely inadequate. The sewerage disposal system is grossly insanitary and would be condemned by any qualified sanitary inspector. There are no receiving or infectious wards, neither diet kitchen nor food lifts, and no elevator service. The operating room is a makeshift one, although surgical operations of importance have constantly to be undertaken. The steam generators are so old and worn that a new battery of boilers must of necessity soon be installed and the boiler house enlarged to hold them. The kitchen, refrigerator room, and laundry are highly objectionable, and in spite of constant care can not be kept in neat appearance and in a sanitary and wholesome condition. The hospital in its entirety, including outbuildings, has reached such a condition of decay that the Bureau is forced to state that it will be impossible to much longer maintain it in a fairly efficient and sanitary condition. In order to continue its safe use and occupation as a general hospital, it will soon be imperatively necessary to accomplish renovation of the entire establishment. At present, despite constant care to establish its cleanliness, and employment of paint used in a vain attempt to cover up ravages of time, the building presents the general appearance of an ill-kept and shabby establishment, discreditable to the medical department of the Navy and unworthy of the naval service. It is, therefore, urgently recommended that an appropriation be requested to enable the Bureau to enlarge, remodel, and renovate this hospital as speedily as possible. Repairs to this old and much-worn building are constantly required, and during the year have been made as necessary. A new range and 300-gallon water boiler for the kitchen, and a new ice box, with trolley for delivering ice, have been provided. Two of the boilers were cleaned and retubed, and connections with the city water supply were made to all of them. Extensive repairs were made to the pest and gate houses. Two 2½-inch wells were driven and connected. An 18-foot alco-vapor launch was supplied, and an 18 by 20 foot float built; also one 9 by 18 feet on the Norfolk side. A riprap 5 feet broad was constructed along the north sea wall, which the tide was undermining. The cemetery received needed care, sunken graves being filled and headstones relined, and in place of wooden headstones crosses erected at graves of unknown dead. The remains of Confederate dead were placed in an orderly manner in a double row. Fences, roofs, chimneys, and smokestacks were painted, and breaks in the walls of the hospital replastered and painted. Dead trees were removed, much grading and filling in done, and the grounds, including walks and roadways, were otherwise improved and kept in good condition. A new iron gate, similar to the one on the east side, was procured and placed on the western side of the grounds.

There were 972 patients treated at this hospital during 1904, of whom 79 were continued from 1903. There were discharged to duty, 690; to other hospitals, 7; invalided from the service, 100; on leave, 5; to hospital for the insane, 10; deserted, 14; died, 13; and continued to 1905, 133. The daily average of patients was 93.73, and the average number of sick days for each 43.33.

Naval hospital, Port Royal, S. C.—The utility of a hospital establishment at the now idle naval station, Port Royal, S. C., was demonstrated during the year, when it became necessary to eradicate a widespread diphtheritic infection from the crew of the U. S. S. *Prairie.* Advantage was taken, as on a previous occasion in 1903, when an epidemic of the same disease existed on the U. S. S. *Buffalo*, of facilities furnished by vacant and unfinished buildings in the yard, to supplement the small and inadequate hospital accommodations of the station. In its previous annual report mention was made of the recommendation of the Bureau that these buildings be utilized for administrative purposes in connection with the establishment of a camp for the treatment of tuberculosis at this station, and also of the disapproval of the recommendation by the Department. The Bureau believes that, should the Department authorize such use of necessary and available buildings and grounds, a satisfactory solution of the problem of the proper care of the tuberculous sick of the Navy and Marine Corps might be secured by establishing here a well-appointed permanent camp. It therefore recommends that this station be utilized by the Medical Department of the Navy as a tubercular camp, and also to meet the needs of the service for a quarantine station when epidemic disease has grown beyond the ability of the general hospitals to care for it. The need of such a station has been brought prominently to the attention of the Department in the cases of the *Buffalo* and *Prairie*, when infectious disease made it imperative to temporarily vacate the ship for purposes of general disinfection and purification to eliminate infection from the crew. Reference is made to this recommendation when dealing with the subject of tuberculosis. Having in view the possibility of the ultimate abandonment of the station, only urgently needed repairs and those of a minor character have been made to the hospital to preserve it in habitable condition until final decision as to the use of the station is reached. This building received minor repairs to roof and porches which were necessary to keep it in a habitable condition. A north window was cut to provide light for an improvised laboratory, and repairs were made to the kitchen floor and board walks. The grounds around the hospital were improved by cleaning and leveling, the work being done by the hospital force.

The number of patients treated at this hospital during the year 1904 was 29, of whom 3 were continued from last year, 23 were discharged to duty, 2 invalided from the service, 1 died, and 2 were continued to 1905. The daily average of patients was 1.25, and the average number of sick days for each 15.86.

Naval hospital, Pensacola, Fla.—The failure to secure action providing for the improvement and enlargement of the naval hospital, Pensacola, Fla., despite representations of the urgency of the need and of the unsuitableness and inadequacy of the present establishment, has been much regretted by the Bureau. This is the only naval hospital on the Gulf coast, and the naval interests in the Gulf are large and important enough to demand that there should be available a hospital ample in capacity and well appointed for the proper care and treatment of patients. During the past winter, as in previous winters when the combined squadrons composing the North Atlantic fleet were gathered in the waters of Pensacola Bay for annual target practice, the insufficiency of the hospital accommodations provided was most apparent. With a view to keeping vacant a few beds for cases of acute or emergency character from the vessels, directions were given to make transfers of suitable cases to hospital farther north. The hospital has been taxed to the limit of its capacity, and sick were detained on board ship in some instances when hospital treatment was desirable. Nearly every feature deemed essential to a modern and sanitary institution is lacking in this hospital. There are no facilities for administration, and neither lavatory nor bath facilities are provided because of lack of space for such conveniences. There is no system of sewerage. The absence of a laundry, of an isolated ward for the care of contagious diseases, of a suitable laboratory for necessary chemical and bacteriological work, of storerooms for safe-keeping of hospital supplies and provisions are among the many deficiencies. The messing arrangements for both patients and nurses are inconvenient and of the crudest character. The patients are subject to gross physical discomfort and inconvenience because of these conditions, which the Bureau has not felt at liberty to attempt to correct, as the necessary expense would have been considerable, and as it was hoped that an appropriation by Congress to comprehensively effect improvements would be made. The lack of a water supply for flushing purposes and of a sewerage system is responsible for an insanitary and offensive condition. A more satisfactory water supply has recently been secured by installing a gas engine and pump at a near-by spring, from which water of good quality is pumped to the cisterns on the hospital grounds. Every reasonable effort has been made to promote the comfort of the sick and to improve local conditions, but the facilities are so crude and limited that satisfactory results have not been secured. The camp for the treatment of tuberculous cases, established on the hospital grounds in 1903 as an experiment, has been maintained. The lack of facilities for administration and control and for the convenience and comfort of the men in camp has been a serious drawback to its efficient and successful management. The medical staff of the hospital are compelled to live in unsuitable quarters. The entire hospital establishment is discreditable to the Navy and forces the medical department to work at a very great disadvantage. There is need for a modern hospital with a capacity of about 60 beds, designed with regard to climatic conditions, with an ample water supply and an efficient system of sewerage. Quarters for the medical staff are also needed. The Bureau earnestly recommends that Congress be asked to make an appropriation, to be immediately available, for improvement and enlargement of the present naval hospital, and also for the construction of two residences—one for the medical officer in command and one for a junior medical officer.

Since the previous report the number of tents for patients in the camp for tuberculosis has been increased to 27, giving accommodation for 54 patients. Five additional tents, placed in tandem, were set up, with suitable flooring, and are used as the mess room for the tuberculous patients. This serves to prolong the open-air regimen to which these patients are subjected, but on account of the unusual severity of the past winter at this locality much discomfort was caused from the impracticability of providing sufficient artificial heat in the tents. A frame dining room, with facilities for heating, would have been more desirable. Some difficulty has been experienced in obtaining food supplies, as the market is poorly provided with meat of good quality, with milk, fresh eggs, poultry, and fresh vegetables—articles most appropriate as dietary. The record of this camp from May 30, 1904, to May 30, 1905, shows as follows:

Number of cases under treatment	110
Returned to duty	7
Discharged from service at own request	33
Discharged for bad conduct	14
Died	12
Remaining under treatment	45

Condition of patients.

Clinically cured	7
Very much improved	42
Improved	29
About the same	9
Failing	4

The repairs authorized and made at this hospital have been petty, but have resulted in improvement in the facilities for the care of the sick. A pumping station was erected at the hospital spring and connection made with the tank in the hospital grounds, thereby supplying the hospital with sufficient water, which it previously had lacked. A brick crematory for the destruction of sputum was built, seven tent floors constructed in the tuberculosis camp, and five tent floors built in tandem for a dining room for tubercular patients. The brick building known as the "engine house" was repaired and fitted for a brig. Repairs were made to verandas of the hospital buildings, to coal shed, stable, and storeroom, and a boiler for hot water was installed in the hospital kitchen, and also one in the junior officers' quarters. Closets were built in the dining room and kitchen, and the fireplaces throughout the kitchen were repaired. The inside of the medical officer's quarters was painted, two doors cut between rooms, plumbing repaired, and a new sink installed. The deadhouse was partitioned to provide a room for use as a laboratory, and the room was ceiled, new flooring and shelving being put in.

During 1904 there were treated at this hospital 330 patients, 17 of whom were continued from 1903. Of the above 135 were discharged to duty, 39 to other hospitals, 68 invalided from the service, 6 on leave, 4 to the hospital for the insane, 2 deserted, 11 died, and 65 continued to 1905. The daily average of patients was 54.27 and the average number of sick days for each 60.19.

Naval hospital, San Juan, P. R.—The necessity for a hospital for the care of the sick of such vessels as are held in the waters of the West Indies, and so located as to be conveniently accessible from the place where the ships of the North Atlantic fleet are annually assembled for winter maneuvers, has been fully demonstrated by the experience of the year. The limited accommodations of this building have been fully taxed, and on several occasions tents have been erected on the hospital grounds to meet special needs. In its present form and condition the hospital is recognized as of a temporary character, but its equipment is modern, and while its facilities are crude in many respects and lacking in conveniences which a complete establishment should have, it has, nevertheless, served a most useful purpose. Removal of the wireless telegraph station from the hospital grounds to a more desirable location, and the transfer of its three small buildings from the Bureau of Equipment for hospital use, has enabled the Bureau to increase the capacity of the hospital by 10 beds. A better type of hospital at this station is desirable, but the necessity for its erection is not immediate.

During the year a number of improvements have been made. A stable has been built, a flagstaff erected, and necessary changes made in cottage and power house of wireless station to fit these buildings for hospital purposes, including installation of city lighting system. Repairs were made to some of the roads, walks, and driveways, the lawn was leveled, and 100 palms planted. The medical officer's house was painted, the roof repaired, and a kitchen range installed. Repairs were made to the ambulance, to the plumbing, the hospital range, and the sterilizers in the operating room.

There were treated at this hospital during 1904 328 patients, of whom none were continued from 1903. There were 240 discharged to duty, 45 to other hospitals, 13 invalided from the service, 1 invalided on leave, 1 to the hospital for the insane, 5 died, and 23 were carried over to 1905. The daily average of patients was 31.48 and the average number of sick days for each 35.13.

Naval hospital, Mare Island, California.—This hospital succeeded the one destroyed by an earthquake in 1898, and was completed and occupied in 1900. Being of recent construction, it is modern in type and in appointments. Since its completion, however, the increase in the naval personnel has been such that its inadequacy in capacity is already manifest. Being the only naval hospital of any importance on the Pacific coast, it supplies the needs of the naval stations at Mare Island, at San Francisco, of the Pacific Squadron, and receives the sick invalided from the fleet in Asiatic waters. There is need, therefore, for an ample and extensive hospital establishment. Provision for increase of its capacity will speedily be necessary. There is at present a detached building for the care of contagious diseases, but it is inconveniently remote from the main building, and is too small for the complete isolation and control of cases of various distinct types of infectious disease which are often under treatment at the same time. The steam generating plant, consisting of two 40-horsepower boilers, is inadequate for the demands of the hospital, and it is desirable that provision be made without delay for two 100-horsepower boilers and a new power house to hold them. On account of the cost of coal it is desired that these boilers be equipped with oil burners, tanks, and necessary apparatus for the use of oil as fuel. Such equipment entails an increase of primary cost, but it is estimated that the subsequent saving in cost of fuel will be one-third of the cost for the coal. An estimate for a power house, a surgical ward, and a new building for infectious diseases is included in the annual estimates.

The improvements and repairs made during the fiscal year have been of a minor character. A building for contagious diseases has been provided by repairing a small house in the rear of the main hospital and putting in water-closets, washbowls, bath tubs, stoves, windows, etc., and repairing and painting walls and connecting the house with a sewer. A new roof was provided for the coal shed, and screens for windows of main and contagious-disease buildings and for the houses of medical officers. A small room was added to ward E. The elevator service, which heretofore stopped at the second floor, was extended to the third floor. Repairs were made to plumbing in the brig and wards and to laundry engine. The grounds, roads, and fences were repaired and improved, the naval cemetery received needed attention, and unmarked graves were provided with headstones. The roof of main building, the wards, and the interior of medical officers' house No. 2 were painted. Electric irons were furnished for the laundry. A wooden floor was laid at a distance from any trees, where there was exposure to the sun's rays, and four hospital tents were erected for occupation by cases of tuberculosis.

There were treated at this hospital during 1904, 1,074 patients, of whom 121 were continued from 1903. There were 637 discharged to duty, 31 to other hospitals, 263 invalided from the service, 12 invalided on leave, 8 to the hospital for the insane, 9 died, and 100 were carried over to 1905. The daily average of patients was 114.92, and the average number of sick days for each 39.16.

Naval hospital, Puget Sound, Wash.—This remote northwestern naval station is not provided with proper hospital facilities. In 1903 the building erected within the limits of the navy-yard as sick quarters was turned over to the Bureau by the Bureau of Yards and Docks, and for convenience of administration it was designated as a naval hospital. It is a small frame structure with a capacity of 17 beds, an inadequate number for the present needs of this growing station. It is regarded as a temporary and makeshift provision. The comprehensive development and growth in importance of the station and its remoteness from the naval station, Mare Island, Cal., where the only other naval hospital on the Pacific coast is located, makes it desirable that action should be taken to secure a suitable site, with sufficient area for the location of a hospital establishment, and to make provision for the construction of the necessary buildings. Suitable grounds for the purpose can not be had from any holdings now in the possession of the Government. The Bureau has caused preliminary investigation to be made, and it is believed that a convenient and well-located plot in the vicinity of the yard, not yet improved, can be secured. Naval interests in the Puget Sound region are increasing in importance, and the present insufficient hospital facilities should not be overlooked. To meet the need for a building in which cases of contagious disease might be cared for the Bureau has had minor repairs made to a small building abandoned by the Bureau of Yards and Docks, and has caused it to be fitted up for the accommodation of 5 patients, with room for an attendant. It serves a useful purpose, but is only a temporary expedient. The equipment of the hospital is modern, and, within the limits of its capacity, it is satisfactory. The pesthouse has been moved to a safe distance from the hospital, repaired, and painted, and a small mortuary constructed. A bacteriological laboratory was fitted up. Sinks, plumbing, and fittings were installed in the hospital kitchen and repairs made to boiler. The interior of the hospital was painted.

During 1904, 137 patients were treated at this hospital. Of these. 8 were continued from 1903; there were discharged to duty 90; to other hospitals, 8; invalided from the service, 24; on leave, 1; to hospital for the insane, 1; died, 1, and continued to 1905, 12. The daily average of patients was 14.19 and the average number of sick days for each 37.92.

Naval hospital, Sitka, Alaska.—During the preceding year the decay of the old storehouse formerly occupied as a naval hospital led to its abandonment as unsafe. To secure necessary accommodations for the sick of the marine command stationed at Sitka, Alaska, a small building was then rented and is retained during the current year. The dependence of the community for professional service being solely upon the naval medical officer on duty at the station, occasion for use of the limited resources of the hospital by civilians in need of emergency treatment has arisen. The interests of humanity demand that under existing conditions such cases should not be denied the benefit of available facilities.

Naval hospital, Yokohama, Japan.—Failure to secure authority from Congress for the purchase of a small lot immediately adjacent to the hospital reservation at Yokohama, Japan, which was offered for sale and was considered necessary in view of the contracted limits of the present site, has necessitated modification of plans in contemplation for the utilization of an appropriation available for improvements at this hospital. Delay in the execution of the plans proposed has occasioned no inconvenience, as during the continuance of the Russo-Japanese war the vessels of our fleet have been infrequently in waters about Japan, and the number of patients admitted to hospital has been smaller than in the previous year. With the exception of the annex and the quarters of the junior medical officer, which are of recent construction, the hospital buildings, including the main building and that containing the mess hall and kitchen, are so old, worn, and badly arranged that further outlay for extensive repairs now needed would be wasteful and extravagant. The best interests of the Government will be served by their demolition and the erection of a new building. The steam-generating plant is reported as practically worn-out and new boilers are required. The lighting service now supplied by a commercial company has not been altogether satisfactory, and it is proposed, when new steam generators are secured, to install a small electric generating plant for lighting the hospital and grounds. During the fiscal year the capacity of the annex has been increased by laying a floor in the attic and otherwise making the attic space habitable. The need for a detached building for contagious diseases and also for a small mortuary building has been felt. The limited space included in the hospital grounds makes the acquisition of the small lot adjacent, the purchase of which has been heretofore recommended, most desirable. Upon this lot a proper site for the two buildings named would be found. During the year the quarters of the medical officers and the annex were painted inside and outside, the main building was painted outside, and minor repairs were made as required.

There were treated at this hospital during 1904, 118 patients, of whom 16 were continued from 1903. There were 83 discharged to duty, 15 to other hospitals, 9 invalided from the service, none invalided on leave, none to the hospital for the insane, 1 died, and 9 were carried over to 1905. The daily average of patients was 17.57, and the average number of sick days for each was 55.50.

Naval hospital, Canacao, P. I.—The completion of the naval hospital at Canacao, P. I., and its occupation on March 14, 1905, has supplied a long-felt need on the Asiatic Station, and has enabled the Bureau to cause to be vacated the old building located in the navy-yard, Cavite, P. I., and provisionally utilized as a naval hospital. The unsuitability of this building, located among noisy surroundings in a busy and crowded navy-yard, for the care of the sick was recognized from the day of its original occupation, but there was then no other available. Its deterioration from structural decay of timber and framework had progressed to such an extent that the abandonment made possible by the opportune completion of the new hospital gave relief from an embarrassing situation in connection with the care of the sick at this station. The new hospital has a capacity of 100 beds, with necessary outbuildings, including kitchen, pesthouse, stable, and a power house in which an electric generating plant is installed. The lavatory facilities are satisfactory, the plumbing and other fixtures are modern and sanitary, an effective sewerage system is provided, and an ample supply of water for flushing purposes is available. There is, however, a lack of water suitable for drinking and cooking purposes, and this most essential feature of the establishment remains to be supplied. For the present there is necessity for conveying such water by boats from the navy-yard, which is both inconvenient and expensive, or by purchase from the municipal supply of Manila, which is much more inconvenient and expensive. Aside from this consideration there is a possibility of contamination in such method of supply which it is desirable to avoid. An ample and pure water supply is everywhere a matter of prime importance, but for a hospital in a tropical locality it is a vital and urgent necessity. The success attendant on the efforts to secure a potable water for the navy-yard at Cavite by boring an artesian well makes it safe to employ the same method to secure the needed supply for the hospital establishment, and therefore the Bureau has included in its estimates a sum sufficient to sink an artesian well on the hospital grounds. The hospital at Canacao is ideally located about 1 mile from the navy-yard at Cavite on a narrow sandy peninsula, which is swept freely by refreshing breezes from the bay. The equipment is modern and complete and its construction is adapted to the climatic conditions prevailing. The comfort and welfare of the sick are well provided for, and until the further development of the naval station at Olongapo requires a hospital to be erected there the one at Canacao may be regarded as meeting the immediate needs of the naval service in the southern waters of the Asiatic Station.

There were treated at the naval hospital, Cavite, P. I., during 1904 388 patients, of whom 36 were continued from 1903. There were 205 discharged to duty and 108 to other hospitals; 17 were invalided from the service; none invalided on leave; none to the hospital for the insane; 4 died, and 54 were carried over to 1905. The daily average of patients was 41.42, and the average number of sick days for each 39.07.

OPERATIVE SURGERY IN NAVAL HOSPITALS.

Reports from the hospitals give an aggregate of 1,022 surgical operations performed during the year ending June 30, 1905. This shows an increase over 1903 of 378 operations; over 1904 of 269. Of these operations 180 were performed at the hospital at Canacao, P. I., 166 at the Norfolk hospital, and 157 at the New York hospital. The following tabular statement shows the number and character of the several operations, viz:

Abscess	83	Laparotomy	3
Adenectomy	192	Ligations	8
Amputations	27	Lithotomy	1
Appendectomy	67	Luxation (old)	1
Arthrotomy	2	Meatomy	9
Aspirations	3	Necrosis (bone)	16
Bronchocele (removal)	1	Nephrotomy	1
Carbuncle	1	Nerve suture	1
Castration	5	Phimosis	23
Cellulitis	5	Plastic operations	17
Cholelithiasis	1	Pterygium	16
Cholecystotomy	1	Resections	4
Circumcisions	84	Thoracotomy	2
Cystotomy	1	Tonsillotomy	13
Cricotomy	1	Trephining (cranium)	3
Empyema	2	Trephining (mastoid)	7
Eneucleation (eye)	3	Tumors and cysts	19
Excisions	7	Tracheotomy	1
Fistula in ano	22	Unguis involutis	1
Fistula (intestinal)	2	Urethrotomy (external)	12
Fracture (ununited)	11	Urethrotomy (internal)	13
Hemorrhoids	86	Varicocele	96
Herniotomy (inguinal)	109	Varicose veins	10
Herniotomy (ventral)	2	Wounds (gunshot)	5
Hydrocele	22		
Laminectomy	1	Total	1,022

MARINES ON THE ISTHMUS OF PANAMA.

Reports from the medical officer serving with the marines established in camp at Empire until May, 1905, and since that date at Bas Obispo, Panama, and on duty within the Isthmian Canal Zone, show a continued satisfactory condition of health of the personnel of the command. There has been no epidemic disease. The camp site was well chosen, and its maintenance in a satisfactory condition and the preservation of the health of the command reflects credit on its responsible officers. The results obtained have, in large measure, been due to the zeal, intelligence, and painstaking supervision and vigilance of the medical officers charged with the duty of sanitation. The command has suffered considerably from malarial fevers—19 per cent, with an aggregate of 76 cases—fortunately not the grave type except in a single instance where death resulted. A large percentage of the native population, estimated at 70 per cent, is believed to be infected by the malarial parasite, and the favorable conditions for the multiplication of disease-bearing mosquitoes prevailing on the Isthmus makes it very probable that malarial fevers will continue to be the principal morbific influence to be contended with. The great sanitary problem of the Isthmus of Panama is the problem of mosquito extermination, and until this has been satisfactorily solved by those who have the sanitation of the Canal Zone and adjacent cities in charge our naval force in this locality will be menaced and may be expected to suffer more or less from malarial fevers. There is a limit to the control over sanitary conditions surrounding the place of encampment of the marine command, however efficient the professional oversight, which is measured by the degree of intelligent cooperation of each individual member of the command, and through inattention and ignorance of an individual unforseen avenues of approach of preventable disease may be opened. Much of the success obtained in prompt control of the malarial infection experienced by the marines has been due to the constant use of the microscope in blood examinations for diagnostic purposes, such examinations having been made in every case.

In January the force of the command, then about 450 men, was reduced by the withdrawal of 250 men, and in March all but one company of 160 men were transferred to Guantanamo, via the U. S. S. *Dixie*, for service in the West Indies. The medical officers attached to the command have been enabled to render, in addition to their official duties, valuable gratuitous assistance to the sanitary authorities of the Canal Zone. No case of yellow fever developed in the command. Sporadic cases of yellow fever having occurred at Panama from time to time during the year, the number increasing in the early months of the year, some apprehension was felt lest this infection might reach the camp, but there has been a fortunate immunity from it. The command is quartered in frame buildings loaned for the purpose by the Canal Commission, and as it is understood that they may not be long available, it may become necessary, in the event of the retention of the marines on the Isthmus, to provide other and suitable accommodations for them. If permanent barracks are to be erected, it is of the first importance that they be designed and built in accordance with the most approved sanitary requirements, keeping in view the tropical environment and the necessity for providing ample space, thorough protection by screening, and satisfactory dormitory and sewerage facilities. The desirability of maintaining a supervisory control of the individuals of the command, and recognition of the monotonous character of the duty performed, make it advisable that a feature of the barrack construction should be the provision of means for the healthful diversion of the men when not on duty.

YELLOW FEVER ON THE U. S. S. BOSTON.

The long period of immunity from yellow fever experienced by vessels of the Navy was unhappily interrupted in January last by an outbreak of this disease, with the rapid development of 6 cases on board the U. S. S. *Boston* in the harbor of Panama, Panama. This vessel had been in the waters of the vicinity of Panama since November 14, 1904. The occurrence from time to time of sporadic cases of yellow fever in the city of Panama led to restricted communication between the ship and the shore. Numerous cases of malarial fever, following infection among the men of a landing party on the Isthmus of Darien some months previous, were occurring among the crew. On January 19 the first case of yellow fever was diagnosed, and in the two following days 5 other cases developed in rapid succession. Of these 6 cases 3 were wardroom officers, 2 were wardroom mess attendants, and 1 a private marine, whose duty required his frequent presence in, or passage through, the wardroom. The focus of infection in the ship was, manifestly, near the wardroom. The original source of infection has not been clearly demonstrated, but is reasonably thought to have been elsewhere, presumably ashore, and to have occurred between the dates of December 30 and January 6. Two of the cases proved fatal, one a mess attendant and the other the medical officer of the vessel. Prompt assistance was given in response to the request of the commanding officer of the vessel by medical officers of the Public Health and Marine-Hospital Service on duty in the Isthmian Canal Zone, and under their skillful direction the vessel was promptly and thoroughly fumigated, pyrethrum and sulphur being the agents employed. That the fumigation was effective is sufficiently established by the fact that no other cases of the disease developed on board. Before fumigation the presence of an unusual number of mosquitoes in the wardroom was noticed, and search led to the discovery of larval forms of mosquitoes in the water contained in a division tub placed in a storeroom below the wardroom and freely communicating with it, the water having been purposely left to preserve the tub. In three other division tubs in other parts of the vessel larvæ were likewise found. This significant circumstance is full of meaning and teaches a most important lesson in ship sanitation in infected localities. Surgs. H. R. Carter and J. C. Perry, of the Public Health and Marine-Hospital Service, rendered professional service in caring for the sick, in addition to the valuable work of fumigation, and the Bureau desires to record its high appreciation of the promptness and efficiency of their help.

MEDICAL SERVICE AT THE ISLAND OF GUAM.

Since the American occupation of the island of Guam and the establishment there of a naval station the medical and sanitary concerns of the administration of the insular government have been supervised and controlled by medical officers of the Navy on duty at the station. Because of the necessity of protecting the sanitary interests of the naval station, as well as for reasons of humanity, growing out of the isolation of the island, the ignorance, dependence, and poverty of the native population, and the entire lack of any medical service other than that supplied by the naval medical officers, it has been necessary to furnish medical supplies and equipment in excess of the legitimate requirements of the personnel connected with the naval station. The additional work incident to the professional care of the native population, numbering about 10,000 individuals, which has devolved upon the medical officers, has been considerable, and the Bureau desires to express its commendation of these officers for their devoted, self-sacrificing, and efficient attention to the unusual demands made upon them. The average strength of the naval command for the past year has been 142, exclusive of the crew of the station ship *Supply*. The general health of the command during the year has been good. Six deaths have occurred; 1 officer and 12 men were invalided to the United States. The island was free from epidemics. A case of smallpox among the crew of the station ship *Supply*, from infection had at Manila, occurred. A small building on Cabras Island, near the naval anchorage, was prepared for occupation in expectation of spread, but no extension of the disease resulted. Apprehension of possible ravages of this disease among, and the desirability of affording protection to, the native population, which had not been vaccinated for several years, led the sanitary authorities of the island to undertake universal vaccination, and, in response to request, the Bureau has been furnishing a sufficient supply of vaccine virus for the purpose. Accommodations for the members of the hospital staff, including the hospital steward detailed for dental duty, and storerooms for medical supplies, have been secured by rental. Naval sick quarters have also been provided by renting from the insular authorities a sufficient part of the civilian hospital at Agaña. These sick quarters have been connected with the plant for the supply of distilled water, and provided with a convenient telephone service. The death rate for the native population during the year was nearly 28 per 1,000.

The benefit to the community from the training and licensing of a class of native midwives is indicated by a gain by births of nearly 2 per cent in the population. This slight increase in the population, in view of the fact that the island is underpopulated, is a matter of decided economic importance. The most serious need of the inhabitants of Agaña, the capital of the island, is for a pure water supply. Local health conditions are seriously affected by the use of contaminated water, which alone is now available for the greater part of the population. Despite a heavy annual rainfall, there is no arrangement for the safe collection and storage of water which might be supplied from this source. The extraordinary prevalence of the parasite *Ascaris lumbricoides* in the intestinal tract of nearly every individual member of the community has been forcibly represented as a veritable curse. Under present conditions it appears to be practically impossible to secure protection from the invasion of this parasite. Correction of this insanitary condition is not practicable without abandonment of the present method of water supply and the substitution of a sanitary system. Inasmuch as the Government holds the island for naval purposes, and as the resources of the insular government are entirely inadequate to meet the expense of providing a proper water supply, it would seem to be reasonable to ask that needed assistance be given by Congress. It is represented that $50,000 would be sufficient to secure the necessary construction to put in practical operation the needed plant, and the subject is submitted for the Department's consideration with a view to such recommendation to the Congress as may be deemed advisable. The Tumon leper colony, established by the insular government and supported by the revenues of the island, has 24 inmates. Two suspects are under observation and may be added to the list of lepers identified within the limits of the island.

BARRACKS FOR RECRUITS.

To keep the enlisted personnel recruited to the authorized strength there must be continuous activity in the work of recruiting. This will result in the gathering at the several recruiting stations, where training preliminary to assignments to the vessels of the fleet is directed, of a large number of recruits. The increase in the number of men allowed by Congress has been in advance of proper and adequate provision for housing them during their period of detention ashore. Several of the old wooden vessels are continued in service as receiving ships, and there is a growing suspicion of their healthfulness, on account of their long occupation as habitations and because of structural decay incident to old age. The maintenance of these wooden vessels in a sanitary condition is a problem of some difficulty, and the danger to be apprehended from overcrowding on board must be constantly borne in mind. Their proven inadequacy for present requirements would be much emphasized should a war condition confront the service. Insanitary conditions would surely develop with promptness, and require the adoption of radical measures of relief. About two years ago, under stress of immediate need for additional accommodation, tents were utilized, and hastily constructed and ill-considered barracks were erected at St. Helena, navy-yard, Norfolk, Va., and at the navy-yard, League Island, Pa. The hygienic deficiencies of these barracks, which are still occupied, have been the subject of comment in previous annual and special reports, and, being structural in large part, remain a menace to the health of the occupants. Barrack buildings of a better type have been recently erected at the Training Station, Newport, R. I.

The problem of proper provision for the care and shelter of recruits for the service remains unsolved, although it is one of pressing importance. For several years the Bureau has recommended that barracks be provided at selected localities, and in these recommendations the Bureau of Navigation has concurred. It is believed that the erection of suitable barrack buildings has been too long delayed. Should they be provided it is important that they should be planned and constructed in accordance with the teachings of sanitary science, insuring for each occupant an abundance of sunlight and fresh air, with ample floor and cubic area, with efficient heating and lighting, with adequate lavatories, approved plumbing, and efficient sewage-disposal system. Inasmuch as the Government assumes the obligation of permanently caring for those who become physically disabled by incidents of service, it is the opinion of the Bureau that the provision of sanitary and commodious barracks for recruits would prove economical from a business standpoint as well as promotive of efficiency. Having in view the constant danger of the appearance of infection, and of epidemic prevalence of contagious diseases among a large number of recruits gathered from recruiting rendezvous and by traveling recruiting parties and assembled at the receiving stations, the Bureau has heretofore recommended, and again recommends, that in connection with the barracks proposed there be erected at each receiving station one separate and completely equipped barrack building with capacity to accommodate all the recruits received at the station during a period of three weeks. Quartered in such detention building during the incubation period of contagious diseases and kept apart from recruits of a longer period of service, the danger of conveyance of infection would be minimized, and transfers of drafts of men might be made with less danger of spread of infection to vessels of the fleet. The need of sanitary barracks for the naval recruits obtains likewise for the men of the Marine Corps. For every barrack building (as a measure of safety) there should be fixed, in accordance with the teachings of hygiene, a maximum permissible number of occupants, which number should not be exceeded.

LAVATORIES, WATER-CLOSETS, AND LAUNDRIES FOR CRUISING SHIPS IN DRY DOCK.

Crews of vessels of war undergoing repairs in dry docks at navy-yards are much inconvenienced by lack of or inadequate facilities for bathing and for washing of clothing, and also by the insufficient number of or insanitary condition of water-closets available for use. The matter being one of great importance to the health and welfare of the personnel of the service, as well as to the sanitary interests of the various navy-yards, and the lack of proper conveniences being practically universal the Bureau felt warranted in inviting the marked attention of the Bureau of Yards and Docks to the facts, with the recommendation that prompt steps be taken to provide ample and sanitary temporary accommodations when permanent provision to this end was not immediately contemplated at each naval station. Entrance of a vessel into dry dock necessitates the cessation of the operation of all lavatories and of the sewerage system of the ship and the failure, therefore, to make proper provision for the necessities of its personnel on shore is unhygienic and injurious. At the navy-yard, Norfolk, Va., alone, is there any provision for washing of clothing, and only at the navy-yard, Puget Sound, is there found a lavatory. At each of these places, however, the facilities supplied are insufficient. Information furnished the Bureau indicates that adequate water-closet facilities for use of crews of ships in dock are found at no navy-yard except at New York, at League Island, and at Puget Sound. Personal hygiene and sanitary interests demand that the conveniences in question should be so located as to be conveniently accessible to each dry dock. The Bureau considers it desirable that at each navy-yard where vessels in commission are liable to be docked, there should be provided laundry or wash rooms, lavatories, and water-closets, constructed in conformity with sanitary requirements and properly equipped with approved fixtures.

OBSERVATIONS OF MEDICAL AND SANITARY MATTERS IN RUSSO-JAPANESE WAR.

The continuance of active military operations in the Far East, with unofficial reports of noteworthy results obtained by the Japanese medical and sanitary authorities in the maintenance of health, and in diminishing mortality from disease among the naval and military forces employed, furnished the occasion for the Bureau's recommendation that a medical officer of the Navy be sent on special duty comprising observations on naval medical and sanitary matters connected with the Russo-Japanese war.

In January last, following permission extended by the Japanese Government, the Department assigned Surg. W. C. Braisted, U. S. Navy, to this special duty under the United States minister at Tokyo, Japan.

The duty assigned to Surgeon Braisted has been completed and the results of his observations are included in a valuable report which will be published as a special report. This report clearly indicates the causes which have combined to establish the efficiency of the Japanese medico-military establishments and secured success in sanitary control which has excited the favorable comment of military sanitarians over the world, and which has not been previously reached in other large armies engaged in active hostilities.

The practice of giving trained medical officers, charged with the responsibility of caring for health conditions, adequate and unquestioned control over sanitary matters affecting the welfare of the personnel, would appear to have been in large measure responsible for the noteworthy efficiency of the combatant forces.

The report states that all branches of the Japanese service encouraged and aided the medical corps by kindly cooperation, and thereby made easy and efficient their arduous duties. As explanatory of the obedience of the personnel, remark is made on its intense patriotism and profound reverence for law and official power, attributable to recent emergence from a feudal condition of control. It is the opinion of the observer that a discipline exists in the army and navy which has no parallel, and emphasis is placed by him on the fact that this discipline extends especially to the medical and sanitary control of every member of the force. Among other factors contributing to the success of the medical establishment, mention is made of the careful preparation for this war, covering a period of ten years spent in organizing, planning, drilling, and gathering supplies in large quantities for the event. The report discusses battle ships, naval hospitals, hospital ships, navy medical school, transportation, care of wounded in action, with organization, equipment, food, etc.

Special attention is called to the careful preparation of the members of the medical corps and to the intense interest taken by them in every branch of their medical work. The excellent results of the work of the medical school of the imperial Japanese navy during the past thirty-four years has been undoubtedly a great factor in the uplifting and growth of this corps. An extended and comprehensive course has been given for years, fitted to the needs of every grade of the service from the probationer to the staff surgeon. This school makes provision for specializing, and at the request of the director-general members of the medical corps may receive special instruction in any subject which may appeal to the bureau of medicine as demanding special knowledge and skill or which the needs of the service may call for at any time.

The report calls attention to the uniformity and completeness of detail of each naval hospital, of the abundance of supplies, instruments, and dressings, and the excellent quality of the present food supply. The hospitals are all on the pavilion plan, with central administration buildings, with usually one-storied wooden or brick pavilion wards for patients, with separate surgical and medical supply depots at each hospital, the supplies being for issue to the hospital and to the ships when at any given station. The kitchens are in detached buildings; also there are separate buildings for the quartering of nurses. Female nurses, when employed, live outside the grounds; they are very highly spoken of, particularly useful in time of war, intelligent, well trained, and exemplary in their morals. Each hospital has, in detached pavilions, accommodation for various contagious diseases, tuberculosis being included among the number; also for the insane, for the operating rooms, for stowing outfits of patients, and for laundry and sterilization plants.

The bacteriological and pathological laboratories are a part of the outfit of each institution. They are always in neat detached buildings, well equipped, and showing evidences of earnest and painstaking work not only in the routine clinical field, but in the field of original research as well.

In the opinion of the observer the Japanese excel us, as a rule, in this line of work. Each laboratory has a well-stocked animal house containing rats, mice, pigeons, guinea pigs, marmots, etc., for use in connection with the laboratories. The plants are filled with most excellent X-ray outfits, usually the Siemen-Halske 50-70 cm. machine. An expert photographer and photographic outfit is provided.

Sterilizers and sterilizing plants are established on a generous scale, and the sterilizers are always much larger than those in our hospitals. Every institution has a large garbage burner, used daily for the disposal of refuse matter. There are usually amusement rooms and canteen for the sick, and an especial feature is the beautifying of the grounds for convalescents.

Mortuaries and necropsy rooms are always in special detached buildings.

Great stress is laid on the feature of hospital ships. The report states that the Japanese have at present in army, navy, and Red Cross some 24 well-equipped hospital ships. A careful study of these ships—their organization, equipment, and personnel—has been made and much useful information gained concerning this useful branch of naval medical work. Two of these ships have been built specially as hospital ships and are of interest on this account. Plans and descriptions of these ships have been submitted.

The hospital corps receives special attention, and the careful training of nurses, who are given a course of theoretical and practical training of two years before being fitted for sea duty, is commended. The pharmacists are stated to be often graduates of the University of Tokio, are skilled chemists, and attain commissioned rank.

The employment of dentists with the fleet and at shore stations is being tried.

The retirement of medical officers in various grades for age is noted, and the observer states that, as a rule, officers of the medical corps are of a higher rank for any given age than with us.

The report on the medical department of battle ships and cruisers—their personnel, care of wounded, and equipment—shows that nothing specially new has been developed, and that, in general, conditions are much the same as on our own ships.

An interesting account is given of the conditions found on the Japanese ships the day after the battle of Tsushima Straits, the work in the Sasebo Naval Hospital at that time, and an account of the work of the hospital ship *Kobe Maru.*

A short résumé of field work in the army follows. Critical notes on the report by Professor Beltz, of the University of Tokio, and the medical director-general of the imperial Japanese navy, with a few pages of general conclusions, complete the report.

All salient features of the report are made clear by diagrams, blueprints, and photographs.

In June last, permission having been accorded by the Russian Government, Surg. Raymond Spear, U. S. Navy, was directed to report to the United States ambassador at St. Petersburg and assigned to corresponding special duty in connection with the naval and military forces of Russia.

HOSPITAL SHIPS.

The necessity for well-appointed and fully equipped hospital ships as a part of a fleet engaged in hostilities is acknowledged by all authorities familiar with conditions to be expected on board ship consequent upon action between modern vessels of war. For several years the attention of the Department has been invited, from time to time, to the consideration of this important matter, and the Bureau, realizing its obligation to make suitable recommendations looking to the provision of means for the welfare of the sick and wounded, again expresses its conviction that the preparation of the fleet demands that there should be provided and available such ships, specially designed for the purpose intended and fully equipped with every convenience and necessary appliance for the most effective handling, care, and treatment of those who will become disabled. The object-lesson furnished by the employment of the *Solace*, *Bay State*, and *Relief* in our Spanish-American war, and the hospital ship *Maine* in the Boer war, as well as the hospital ships now employed in the Russo-Japanese war, has been sufficient to carry conviction that hospital ships are indispensable. It is improbable that any civilized power, in this era, would neglect to provide them when engaged in actual hostilities. The Bureau considers, however, that it is far better to have hospital ships built which incorporate the most careful design, attention to details of construction, arrangement, and allotment of space, with a view to securing the most satisfactory results, rather than to rely upon a plan of utilizing vessels primarily intended for commercial use, and to hurriedly adapt them to hospital purposes without time for carefully considered changes. The surgeon-general of the Japanese navy states:

> The courses of the cases which were transferred to Sasebo Naval Hospital by hospital ship were better than those sent back by a transport. This clearly shows that the hospital ships, which have everything ready for the treatment of the sick and wounded, are superior to the common transports in the point of management of the sick and wounded.

In the annual report of 1903 the Bureau reported that it had prepared plans for a model hospital ship of moderate size and speed, with a capacity of about 300 patients; that the plans had been laid down by the Bureau of Constitution and Repair; and urgently recommended that the construction of two of these vessels, estimated to cost $1,630,000 each, be provided for by Congress. This recommendation is again made.

While recognizing that the greatest field of usefulness of the hospital ship will be during the period of actual war, the Bureau is satisfied that in time of peace there is abundant opportunity for its most useful employment. The aggregate force on the vessels comprising the North Atlantic Fleet is large enough to justify the presence of a well-appointed hospital ship as an integral part. Each year when the various squadrons have been assembled for maneuvers in the waters adjacent to San Juan, P. R., and later in the Gulf for annual target practice, new evidence has been furnished of the need of a hospital ship for the proper care of the sick of its personnel. The small, inadequate hospital at Pensacola, Fla., with its capacity limited to 24 beds, is the only semblance of a naval hospital on the Gulf of Mexico. The naval stations at Guantanamo, Cuba, and at Culebra are wholly unprovided with hospital accommodations, and the hospital at San Juan, P. R., is a temporary establishment, with a capacity barely sufficient for ordinary needs. There is, therefore, no proper hospital conveniently accessible to meet the necessities which the winter drills of the fleet in the waters of the West Indies annually demonstrate. The sick must, in consequence, oftentimes be retained on board to their detriment, with attendant increase of suffering and embarrassment of the ship's company, or, as occasion allows, must be transferred to some remote northern hospital by ill-equipped collier or other unsuitable conveyance, possibly with added invalidism and increased loss of time from duty. The presence of an ambulant hospital ship would be a great boon and, it is believed, would add to the effectiveness of the drills.

The mistaken idea that a hospital ship is intended for the care of surgical cases incident to battle is entertained in some quarters, but this should be corrected. The fact is that, if properly equipped, she would serve as a convenient and readily accessible naval hospital, ready for the care of all cases of sickness, surgical or medical, including infectious diseases, which might arise on the various vessels. Should the accumulation of sick beyond her capacity to properly care for them necessitate transfer to a naval-base hospital, a hurried run to the nearest base hospital would be made under circumstances of a minimum of discomfort and harm to the sick, with prompt return to her legitimate sphere of action. So far as the Bureau is advised, the medical officers in the fleet are of one opinion as to the need and desirability of a hospital ship to serve with the fleet. With knowledge of the wholly inadequate accommodations at any place south of Norfolk, Va., and to insure proper care for the sick afloat, the Bureau last fall urgently recommended that the hospital ship *Relief*, whose repairs had been completed and whose medical outfit had been assembled at Mare Island, in readiness for immediate use, be brought around to the Atlantic seaboard and be utilized during the winter maneuvers. The adverse decision of the Department on this recommendation deprived the Bureau of the opportunity to demonstrate her value and utility under conditions of peace to the fleet. No reason for a change of its views on this subject has been apparent to the Bureau, and it is again recommended that this vessel be made available for cooperation in the coming winter maneuvers in the north Atlantic. It should not be overlooked that the duty performed by her would furnish an opportunity for valuable training to the Hospital Corps as well as the medical staff in service conditions on a hospital ship, and thereby better fit them for the added labors and responsibilities incident thereto to be met with in time of war.

SANITARIUM FOR TUBERCULOUS PATIENTS.

The attention of the Department has been invited in the past three annual reports to the necessity for the establishment of a sanitarium for the care of the cases of tuberculosis occurring in the naval service. An appropriation for this purpose is again asked for, and the urgency of the need encourages the hope that it will be allowed at the coming session of Congress. At the end of the fiscal year there were 63 tuberculous patients under treatment at Fort Bayard. N. Mex., and 46 patients with the same disease at the naval hospital, Pensacola, Fla. The conditions at neither of these localities are satisfactory, and yet the cost to the Bureau is as much as would result from treating the cases in a well-appointed naval sanitarium. This subject has been given careful study and consideration, and every endeavor has been made to meet the needs of these unfortunate sick with the unsatisfactory means at hand.

The facilities of the United States Army general hospital at Fort Bayard, N. Mex., have been, and are being, utilized for selected cases, as in previous years. There is no question of the benefit resulting to many of the patients transferred for treatment at this institution. The favorable climatic conditions associated with the elevation of the locality furnish an environment especially favorable to the carrying out of the basic principle of the regimen considered as promising the most good to such unfortunates, i. e., continuous exposure in the open air. There are, however, inconveniences of administration and annoyances incident to the control and discipline of naval patients under army regulations. Moreover, the remoteness of Fort Bayard from the Atlantic coast involves a considerable expense for transportation. The camp, experimentally established in connection with the naval hospital at Pensacola, Fla., in 1903, for the treatment of tuberculous cases under canvas tents at tide level has been kept up. In another connection in this report a synopsis of cases treated in this camp gives encouraging evidence of improvement for such unfortunate victims of this disease as can not secure the benefits of residence in a more favorable locality. The crudity of the facilities found at the naval hospital, Pensacola, the lack of a sewerage system, of an abundant water supply, of lavatory conveniences, the difficulty of obtaining market supplies particularly needed by the tuberculous sick, the unavoidable monotony of the life, together with the debilitating effects of the prolonged summer heat, have undoubtedly militated against the entire success of this camp. The question of its discontinuance has been seriously considered, but until provision is made permitting its removal to a more desirable locality it must be continued. The utilization of the conveniences to be found at the naval station, Port Royal, S. C., in connection with a camp for tuberculous cases has been suggested in the preceding annual report, and there might be established here a much more satisfactory encampment than the existent one at Pensacola. The danger of conveyance of infection makes it undesirable to retain cases of pulmonary tuberculosis in a general hospital, and there is, therefore, need for a well-appointed sanitarium, the capacity of which should be sufficient for the care of about 125 tuberculous patients. The Bureau has made preliminary inquiries concerning the matter, and is of the opinion that a most appropriate site can be found at some conveniently accessible locality, not too near a populous center, in the mountainous sections near the Atlantic seaboard.

THE BUREAU TO ADVISE ON SANITARY MATTERS IN NEW CONSTRUCTIONS.

It is axiomatic that disregard of the laws of health always carries its penalties. Incidents have not been lacking in service experience where the principles of hygiene have been sacrificed to gain some end of less vital importance. In ship construction and in barrack building inattention to sanitary requirements has on occasions imposed unwholesome conditions upon the personnel which have seriously influenced its health and welfare. Such conditions, if improved at all, have so been after delay and considerable expenditure of money, and have resulted in increased invalidism and consequent addition to the pension list. Problems of sanitation in connection with ships and barracks, such as ventilation, lighting, berthing accommodations, lavatory, and sewage-disposal facilities, can be most economically and satisfactorily worked out before grave errors have been incorporated in completed structures. Inasmuch as the medical officer is, by professional training and experience, informed as to sanitary requirements and is charged with the responsibility of caring for the physical welfare of those whose health has been impaired by unhygienic conditions of service, it is considered desirable that his counsel should be secured in dealing with matters that concern the sanitary interests of the personnel as a means of health protection and disease prevention. As a sanitarian the medical officer may find his highest field of usefulness. For these reasons the Bureau considers it proper to urge that it be given an opportunity to advise on questions of sanitation involved in constructions, whether of ships or barracks, which are to be habitations for the enlisted personnel, whether of the Navy or of the Marine Corps. In its order of April 17, 1902, the Department has directed that in the preparation of plans for new ships and in extensive alterations of old the Bureau of Medicine and Surgery be consulted in an advisory capacity on such matters as pertain to the care of the sick. Good results have been accomplished by this order. The extension of its scope so as to include the provision for consultation and an expression of the opinion of the Bureau upon all sanitary questions influencing the welfare of the personnel on ship or in barracks can not fail to be beneficial and for the good of the service. The greatest efficiency of the personnel is in large part dependent upon its being maintained in a condition of robust health. Sanitary considerations should invariably receive due prominence and have legitimate influence. It is therefore recommended that the Department direct that in connection with all new and permanent constructions in which the personnel of the Navy and Marine Corps are to live, reference of the plans of such to the Bureau of Medicine and Surgery previous to construction be made for an opinion and recommendation upon such matters as may be of sanitary moment.

MEDICAL MEMBERS ON BOARD OF INSPECTION AND GENERAL BOARD.

In preceding annual reports the Bureau has asked that the Department give consideration to its recommendation that a representative of the Medical Department be asigned to membership on the board of inspection and general board. As the duties performed by these boards require consideration of matters involving problems of sanitation, action upon which may have a far-reaching and serious influence upon the health and welfare of the personnel of the service, it is thought that appropriate place could be provided on them for a medical officer who by professional training and experience as a sanitarian is qualified to give technical counsel. There is abundant opportunity for useful employment of a medical member in dealing with the sanitary aspects of problems of construction, inspection, and general policy of the Navy. In decision upon such questions as location and development of naval stations, barrack, or other accommodations for the personnel, sites of hospitals best adapted to local needs, hospital ships, and on problems involving the health of the personnel the presence of an experienced medical member would tend to secure fuller recognition for sanitary considerations of vital importance. The board of inspection has to deal with questions influencing the physical condition of the personnel, such as food and water supply, ventilation, clothing, provision for the care and accommodation of the sick, cleanliness and general sanitary condition of vessels, which come within the scope of the professional duty of the medical officer. It is believed that good results will follow from such assignment, and the Bureau renews its recommendation that a medical officer be given a place on these boards.

DENTISTS FOR THE NAVY.

The increase in the personnel furnishes added reasons for, and gives further emphasis to, recommendations for the employment of skilled dentists under the control of the Bureau of Medicine and Surgery for service in the Navy. Recommendations that legislation be enacted permitting the appointment of 1 dental surgeon for every 1,000 of the strength of the Navy and Marine Corps, the total number not to exceed 30, have been repeatedly submitted. The Bureau renews its recommendation that authority be secured to this end under the same terms and conditions as apply to the appointment of acting assistant surgeons in the Navy, after satisfactory examinations, to be prescribed by the Surgeon-General of the Navy. The Department has approved and recommended the enactment of such legislation, and the House Naval Committee, at the last session of the Fifty-eighth Congress, favorably reported upon and recommended the passage of House bill No. 18722, which embodied the Department's views on the subject. This bill, however, failed of consideration. To relieve to some extent the urgent need for dentistry in the service the Bureau has continued to utilize in a restricted way the services of a few hospital stewards having knowledge of dental operations at several of the receiving ships and principal training stations, as well as at Guam and at Cavite, but such employment is recognized as only a temporary expedient, and can not but be displeasing to the dental profession. The pay received by a hospital steward is entirely inadequate compensation for the services of a qualified dentist, and it is not to be presumed that a hospital steward so qualified will remain in the Hospital Corps of the Navy beyond the term of his first enlistment unless offered reasonable hope of speedy advancement in rank and pay. Though limited to simpler forms of dental work, the service rendered by these men has been most beneficial and highly appreciated. The services of contract dental surgeons are available for the personnel of the Army, under authority of Congress, and the necessity for their employment to secure the best interests of that branch of the military service has been satisfactorily established, and in the opinion of the Bureau it is equally essential to the welfare of the personnel of the Navy that such services be provided. It is therefore hoped that favorable action will be speedily taken to provide a corps of dental surgeons for the Navy.

WOMEN NURSES.

That women nurses are by natural endowment and aptitude superior to male nurses for much of the duty required in the care of sick and injured men is generally admitted. Every war of modern times has demonstrated this fact. The Medical Department of the Army is now provided with a corps of trained women nurses, and their adaptability to service conditions and efficiency in institutions under military control have been fully established, as shown by the official reports from the office of the Surgeon-General of the Army. Their services would be most useful in the naval hospitals, insuring for the sick of the Navy as careful nursing as is now given to the sick of the Army. Valuable assistance, moreover, in teaching and training the men of the Hospital Corps their special duties of attendance on the sick could be rendered by them, and, in the event of war, besides being utilized on hospital ships, they could, in large part, take the place of the men in the naval hospitals, thereby releasing the latter for service with the force afloat where they would be needed. In the opinion of the Bureau, provision should be made for one superintendent of nurses to supervise the discipline of the corps, and as many chief nurses, nurses, and reserve nurses as may be needed, in the discretion of the Secretary of the Navy. In time of peace the number of such trained women nurses would be very small, but the organization should be such as to admit of ready expansion to meet extraordinary needs without delay or confusion. The recommendation of the Bureau that Congress be asked to authorize the appointment of trained women nurses has heretofore met with the approval of the Department, but necessary legislation has so far failed of enactment. The Bureau renews its recommendation that legislation authorizing the employment of trained women nurses for the Navy be requested of Congress.

BOOK OF INSTRUCTIONS.

The need and importance for use in the Medical Department of the Navy of a compendious manual, similar in character and scope to that issued to the medical officers of the United States Army, has been long appreciated by the Bureau. Supplementing the Navy Regulations by more detailed and specific instructions in methods of procedure affecting exclusively the medical officer, it will insure by its information uniformity of practice in the important duties pertaining to examination of recruits, preparation of medical records upon which decision of pension claims must be based, sanitary reports, and to the various other features of the duty of the naval medical officer. Specific information concerning the performance of these various duties is most desirable for accuracy and efficiency, and the proper conduct of the work of the Medical Department in its entire range will be much facilitated by this manual. The availability of such a book will prove particularly helpful and valuable to the younger medical officer who lacks service experience and who has entered the Medical Corps since the last edition of the book of instructions was exhausted. The physical examination of recruits for the service has, through the exigency of the service, largely devolved upon medical examiners inexperienced in service conditions, and without the guidance and help to be had from the proposed manual, undesirable recruits have been too often accepted and needless expense thereby incurred.

The manuscript of the book has been long in preparation. It has been most carefully considered, and in its revised form will shortly be submitted to the Department for its approval. It is hoped that it may soon be ready for issue and in the hands of every medical officer of the service.

STATEMENT OF WORK DONE BY THE RECORD AND PENSION DIVISION OF THE BUREAU DURING THE FISCAL YEAR ENDING JUNE 30, 1905.

Pension cases remaining on hand June 30, 1904	21
Received during fiscal year ending June 30, 1905	2, 429
Answered during fiscal year ending June 30, 1905	2, 355
Remaining on hand June 30, 1905	95
Cases for board of medical examiners received and answered	445
Cases for retiring board received and answered	28
Reports of deaths received	266
Reports of medical survey received and acted upon	2, 060
Cases from Civil Service Commission received and answered	149
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	3, 101

STATISTICAL REPORT OF THE HEALTH OF THE NAVY AND MARINE CORPS FOR THE YEAR 1904.

The health of the Navy and Marine Corps for the calendar year 1904, as shown by the statistical returns, was good, the ratio of admissions to the sick list per 1,000 of strength being less than for the year 1903 and for the nine preceding years.

The average strength of the active list during the year 1904 was 40,555, which is an increase of 3,307 over the previous year, the average strength of 1903 being 37,248. Returns were received by the Bureau of Medicine and Surgery from a force of 39,450, the difference, 1,105, representing the crews of small vessels not provided with medical officers, officers and men on leave, and those on special or detailed duty at places from which medical returns in detail are not received. Reports of death are received from the total force, and the figures representing that strength are used in computing ratios of death, but all other ratios are based upon the number shown by the returns of the Medical Department.

The total number of admissions for all causes was 28,478, the ratio per 1,000 of strength being 721.88, as compared with a ratio of 782.24 for the previous year and 784.44 for the nine preceding years. There were 24,270 admissions for disease and 4,208 for injuries, giving ratios of 615.21 and 106.67, respectively. The correspondng ratios for 1903 were 671.82 and 110.14, from which it will be seen that the admissions for diseases and injuries were less than in 1903.

The daily average of patients was 1,235.96 and the ratio per 1,000 of strength 31.34, both being less than the previous year, when the daily average was 1,289.03 and the ratio 35.23. The total number of sick days was 452,361, or an average of 11.47 sick days for every man in the Navy and Marine Corps, and the average duration of treatment for each case was 15.88 days. During 1903 the total sick days were 470,496, the average per man 12.88, and the average duration of treatment 16.48 days.

The number of persons invalided from the service during the year for disease and injury was 1,408, giving a ratio of 34.72 per 1,000 of strength. The corresponding figures for last year were 1,541 and 41.37, respectively. The ratio for 1904 is lower than that of last year, but higher than that of the nine preceding years, due possibly to the large number of recruits entering the service during the year. The discharges for disability include 1,201 for disease and 207 for injury, with ratios per 1,000 of strength of 29.61 and 5.15, respectively. The corresponding figures for 1903 were 1,348 and 193, with ratios of 36.19 and 5.18, respectively.

There were 246 deaths during the year, giving a ratio of 6.06, which is slightly greater than that of the previous year (6.01), and less than the average of the preceding nine years (6.70). One hundred and thirty occurred from disease, with a ratio of 3.21, and 116 from injury (including poison), with a ratio of 2.85.

Among the causes of admission to the sick list, tonsilitis stands first, with 2,782 admissions, and malarial diseases, with 1,614 admissions, stands second.

Epidemic diseases during 1904, with the exception of measles and rubella, decreased considerably, as shown by the following comparison with 1903:

Disease.	1904.	1903.	Disease.	1904.	1903.
Epidemic catarrh	1,059	1,529	Rubella (German measles)	122	63
Measles	393	250	Smallpox	15	24
Mumps	219	705	Cerebro-spinal meningitis	10	30
Diphtheria	194	620	Scarlet fever	12	15

Admissions for pulmonary tuberculosis and typhoid fever were 247 and 194, respectively, which is a slight increase over the admissions for 1903, which were 234 and 188, respectively. Pneumonia shows a decided decrease from 315 cases for 1903 to 156 for 1904. Venereal diseases still cause a decided loss of efficiency, the total number of admissions being 5,523, which is an increase of 963 over the admissions for 1903. Admissions for alcoholism were 260, as compared with 248 for the previous year. Admissions for injuries were increased during 1904, amounting to 3,759, with 116 deaths, as compared with 3,591 admissions, with 60 deaths, for 1903.

In comparing these returns with those of the previous year it is noteworthy that though the ratio of admissions to the sick list per 1,000 of strength is less than in 1903, the mortality is greater than that of 1903. Among the causes which increased the latter was the appalling disaster on the U. S. S. *Missouri*, resulting in 34 deaths.

RECRUITING.

The following table shows the record of enlistments and rejections for the year 1904:

Where examined.	Number examined.	Number accepted.	Number rejected.	Color-blind.
Receiving ships:				
Wabash, Boston, Mass	245	210	35	1
Hancock, New York	1,475	980	495	36
Lancaster, Philadelphia, Pa	421	231	190	4
Franklin, Norfolk, Va	573	304	269	23
Independence, Mare Island, Cal	401	328	73	1
Total	3,115	2,053	1,062	65
Naval and marine rendezvous:				
Boston, Mass	4,573	1,812	2,761	107
New York, N. Y	1,885	976	909	92
Philadelphia, Pa	2,316	970	1,346	119
Puget Sound, Wash	521	335	186	5
Washington, D. C	568	297	271	10
San Francisco, Cal	1,151	674	477	17
Baltimore, Md	689	202	487	59
Buffalo, N. Y	778	411	367	41
Chicago, Ill	1,514	561	953	68
St. Louis, Mo. (temporary)	916	478	438	18
Total	14,911	6,716	8,195	536
Recruiting parties in the field	11,087	5,382	5,705	217
Ships and shore stations other than naval and marine rendezvous and receiving ships	2,656	1,988	668	35
Grand total	31,769	16,139	15,630	853

Number examined	31,769
Number rejected per 1,000 for all causes	495.10
Number rejected per 1,000 for color-blindness	26.85
Number of first examinations	27,288

INSANE OF THE NAVY.

Number of patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1904	141
Admitted during the fiscal year ending June 30, 1904	60
Total	201
Discharged during the fiscal year ending June 30, 1905 (15 died, 20 recovered, 8 improved, 1 eloped)	44
Remaining in that institution June 30, 1905	157
Number of patients from the Navy and Marine Corps in the Mendocino State Hospital for the Insane on June 30, 1904	10
Admitted during the ficsal year ending June 30, 1905	13
Total	23
Discharged during the fiscal year ending June 30, 1905 (0 died, 9 recovered, 1 unimproved)	10
Remaining in that institution June 30, 1905	13
Patients under treatment in both institutions June 30, 1905	170

NAVAL HOSPITALS.

SUMMARY FOR THE YEAR 1904.

Cases met with in hospitals appear, as a rule, in the returns from the stations where the disease or injury was contracted. All such cases are indicated in Table XIII, page 69, in the column "Readmitted," while diseases or injuries first recorded in hospitals appear in the same table in the column "Admitted," and are regarded as original admissions.

NAVAL HOSPITALS, 1904.

Hospitals.	Number of cases under treatment.				Number invalided from service.				Number dead.				Number discharged to duty.				Average number daily under treatment.	Average number of days' treatment per case.	Total number of sick days.
	Remaining from last year.	Admitted during the year.		Total.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.			
		Diseases.	Injuries.																
Cavite, P. I	36	310	42	388	16	1	17	43.81	3	1	4	10.31	181	24	205	528.35	41.42	39.07	15,161
Chelsea, Mass	49	444	30	523	50	5	55	105.16	5	0	5	9.56	377	25	402	768.64	46.30	32.40	16,946
Mare Island, Cal	121	839	114	1,074	217	46	263	244.88	8	1	9	8.38	577	60	637	593.11	114.92	39.16	42,064
Newport, R. I	45	427	30	502	51	11	62	123.51	3	0	3	5.98	368	15	383	762.95	44.46	32.61	16,374
New York, N. Y	125	1,001	121	1,247	265	39	304	243.78	14	0	14	11.22	643	69	712	570.97	110.96	32.56	40,614
Norfolk, Va	79	801	92	972	86	14	100	102.88	10	3	13	13.37	628	62	690	709.87	93.73	43.33	34,306
Pensacola, Fla	17	295	18	330	62	6	68	206.06	11	0	11	33.33	129	6	135	409.09	54.27	60.19	19,864
Philadelphia, Pa	59	754	65	878	70	18	88	100.22	11	1	12	13.67	639	39	678	772.21	56.51	23.55	20,684
Port Royal, S. C	3	22	4	29	2	0	2	68.96	1	0	1	34.48	19	4	23	793.10	1.25	15.86	460
Portsmouth, N. H	16	120	17	153	9	1	10	65.36	5	1	6	39.22	107	12	119	777.78	14.96	35.79	5,477
Puget Sound, Wash	8	106	23	137	18	6	24	175.18	1	0	1	7.30	72	18	90	656.93	14.19	37.92	5,195
San Juan, P. R	0	305	23	328	10	3	13	39.63	4	1	5	15.24	228	12	240	731.71	31.48	35.13	11,529
Sitka, Alaska	1	23	9	33	0	0	0	....	0	0	0	....	22	9	31	939.39	.94	10.42	344
Washington, D. C	23	272	46	341	36	4	40	117.30	1	2	3	8.81	212	37	249	730.21	34.36	36.88	12,577
Yokohama, Japan	16	84	18	118	7	2	9	76.27	1	0	1	8.47	72	11	83	703.39	17.57	55.50	6,541

STATISTICAL TABLES.

The following statistical tables give in detail the data on which the statements in this report are based:

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1904.

2. *North Atlantic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1904.

3. *European Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1904.

4. *Pacific Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1904.

5. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1904.

6. *Receiving ships.*—Names of ships, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1904.

7. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1904.

8. *Force afloat.*—General aggregate, 1904.

9. *Force afloat.*—Detailed statement, 1904.

10. *Navy-yards, marine barracks, and other shore stations.*—General aggregate, 1904.

11. *Navy-yards, marine barracks and other shore stations.*—Detailed statement, 1904.

12. *Naval hospitals.*—General aggregate, 1904.

13. *Naval hospitals.*—Detailed statement, 1904.

14. *Report of vaccination for the year 1904.*

15. *Prevalence of special diseases (relation by scale).*—For the year 1904.

16. *Mortuary record for the year 1904.*

17. *Deaths in the Navy and Marine Corps (relation by scale).*—During the year 1904.

1. *General view of the effects of disease and injury on the Navy and Marine Corps during the year 1904.*

Average strength of the Navy and Marine Corps[a]	**40,555**
Average strength shown by reports of Medical Department[b]	**39,450**
Average strength of the force afloat	**33,914**
Admissions for disease, ashore and afloat	**24,270**
Ratio per 1,000 of strength	**615.21**
Ratio per 1,000 for previous year	**671.82**
Ratio per 1,000 for nine preceding years	**653.48**

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[a] **Used in computing ratios of deaths and discharges from the service for disability.**

[b] **Used in computing all ratios except those of deaths and discharges from the service for disability.**

Admissions for injuries, ashore and afloat	4,208
Ratio per 1,000 of strength	106.67
Ratio per 1,000 for previous year	110.14
Ratio per 1,000 for nine preceding years	141.82
Total admissions to sick list during the year	28,478
Ratio per 1,000 of strength	721.88
Ratio per 1,000 for previous year	782.24
Ratio per 1,000 for nine preceding years	784.44
Daily average of patients	1,235.96
Ratio per 1,000 of strength	31.34
Ratio per 1,000 for previous year	35.28
Ratio per 1,000 for nine preceding years	32.69
Total number of sick days	452,361
Average for each man of Navy and Marine Corps	11.47
Average for previous year	12.88
Average for nine previous years	11.76
Average days for each case treated	15.88
Average days for previous year	16.48
Average for nine preceding years	14.48
Discharges from service for disease	1,201
Ratio per 1,000 of strength	29.61
Ratio per 1,000 for previous year	36.19
Ratio per 1,000 for nine preceding years	24.90
Discharges from service for injury	207
Ratio per 1,000 of strength	5.15
Ratio per 1,000 for previous year	5.18
Ratio per 1,000 for preceding nine years	4.26
Total discharges for disability	1,408
Ratio per 1,000 of strength	34.72
Ratio per 1,000 for previous year	41.37
Ratio per 1,000 for nine preceding years	29.12
Deaths from disease	130
Ratio per 1,000 of strength	3.21
Ratio per 1,000 for previous year	4.40
Ratio per 1,000 for nine preceding years	4.52
Deaths from injury (including poisons)	116
Ratio per 1,000 of strength	2.85
Ratio per 1,000 for previous year	1.60
Ratio per 1,000 for nine preceding years	2.17
Total deaths from all causes	246
Ratio per 1,000 of strength	6.06
Ratio per 1,000 for previous year	6.01
Ratio per 1,000 for nine preceding years	6.70

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1904.

2. NORTH ATLANTIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Abarenda	Year	113	166	51	217	1,920.35	1,218	3.33	29.85	65	-----	----
Alabama	do	650	346	95	441	678.46	4,732	12.96	19.89	41	2	2
Alliance[a]	208 days	71	45	12	57	802.82	530	2.55	35.91	1	-----	----
Amphitrite	Year	176	119	39	158	897.73	1,972	5.39	30.62	10	-----	2
Arkansas	do	190	106	33	139	731.58	1,104	3.02	15.89	21	4	----
Atlanta	do	325	81	9	90	276.92	1,166	3.19	9.81	30	-----	----
Baltimore	do	385	251	46	297	771.43	2,400	6.56	17.03	30	2	4
Bancroft	do	127	97	23	120	944.88	1,308	3.57	28.11	25	1	----
Castine	do	151	121	10	131	867.55	633	1.73	11.45	6	2	----
Chattanooga[a]	81 days	66	46	5	51	772.73	218	2.69	40.75	9	-----	----
Chesapeake[b][c]	121 days	63	24	6	30	476.19	171	1.41	22.38	4	-----	----
Chicago[a]	139 days	146	90	23	113	773.97	731	5.26	36.02	24	1	1
Columbia	Year	438	255	79	334	762.56	1,633	4.46	10.18	126	1	1
Culgoa	do	206	79	13	92	446.60	1,575	4.30	20.87	72	2	----
Denver[a]	228 days	177	96	21	117	661.02	689	3.02	17.06	21	1	2
Des Moines[a]	302 days	232	137	24	161	693.97	888	2.94	12.67	85	-----	----
Detroit	Year	247	117	31	148	599.19	918	2.51	10.16	23	-----	1
Dixie	do	325	238	54	292	898.46	2,859	7.81	24.03	69	5	1
Dolphin	do	140	57	11	68	485.74	392	1.07	7.64	18	-----	----
Eagle	do	67	53	11	64	955.22	242	.66	9.85	10	-----	1
Fish Hawk	do	42	11	2	13	309.52	81	.22	5.23	4	-----	----
Florida	do	198	93	19	112	565.66	888	2.43	12.26	44	-----	1
Glacier[c]	212 days	93	54	14	68	731.18	934	4.41	47.41	32	-----	----
Gloucester	Year	70	94	13	107	1,528.57	655	1.79	25.57	16	-----	----
Hartford	do	411	265	68	333	810.22	1,773	4.84	11.77	36	-----	1
Hist[b]	182 days	21	7	2	9	428.57	10	.05	2.38	7	1	----
Hull[c]	do	37	15	3	18	486.49	131	.72	19.46	5	-----	----
Illinois	Year	638	248	45	293	459.25	2,063	5.64	8.08	53	1	1
Iowa	do	575	632	68	700	1,217.38	3,370	9.21	16.01	71	6	1
Kearsarge	do	716	553	113	666	930.17	4,585	12.53	17.50	109	-----	----
Kentucky	do	582	243	52	295	506.87	2,210	6.04	10.37	55	3	1
Maine	do	756	412	50	462	611.11	2,843	7.77	10.27	66	1	1
Marcellus[a]	152 days	37	26	6	32	864.86	318	2.09	56.48	25	-----	1
Marietta	Year	147	60	11	71	482.99	570	1.56	10.61	12	-----	----
Massachusetts	do	472	372	109	481	1,019.07	2,496	6.82	14.42	116	1	1
Mayflower[c]	305 days	150	106	17	123	820.00	1,407	4.61	30.73	23	-----	3
Michigan	Year	99	35	9	44	444.44	662	1.81	18.28	1	-----	1
Minneapolis	do	714	181	34	215	301.11	3,041	8.31	10.23	55	1	1
Missouri	do	650	514	137	651	1,001.53	4,250	11.61	17.86	89	2	34
Monongahela	do	193	149	21	170	880.83	1,251	3.42	17.72	72	-----	----
Montgomery[c]	259 days	168	69	14	83	494.05	1,093	4.22	25.12	16	-----	1
Nashville[c]	182 days	91	51	6	57	626.37	549	3.02	33.19	11	-----	----
Nevada	Year	186	76	22	98	526.88	1,065	2.83	15.22	15	-----	----
Newark	do	415	521	101	622	1,498.79	4,139	11.31	27.30	47	2	1
Newport	do	159	63	13	76	477.99	618	1.69	10.29	11	-----	----
Peoria	do	32	6	-----	6	187.50	80	.22	6.88	2	-----	----
Prairie	do	535	331	60	391	730.84	2,855	7.80	14.58	43	2	2
Scorpion	do	99	61	12	73	737.98	434	1.19	12.02	24	-----	----
Southery	do	297	72	9	81	272.72	745	2.04	6.87	40	1	1
Texas	do	513	223	69	292	569.20	1,741	4.76	9.28	52	1	1
Topeka	do	306	181	41	222	725.49	1,695	4.63	15.13	24	1	----
Torpedo Flotilla, 2d Division	do	379	97	16	113	298.15	778	2.13	5.62	44	1	----
Vixen[c]	91 days	20	8	1	9	450.00	123	1.35	67.50	1	-----	----
Wasp	Year	52	70	9	79	1,519.23	601	1.64	31.54	26	-----	----
Yankee	do	612	270	74	344	562.09	2,117	5.78	9.44	78	3	2

[a] Commissioned. [b] Commissioned and put out of commission. [c] Put out of commission.

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1904—Continued.

3. EUROPEAN STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Admissions. Injury.	Admissions. Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Brooklyn	Year	626	337	79	416	664.54	4,483	12.25	19.57	40	1	1
Cleveland	do	328	115	30	145	442.07	1,408	3.85	11.74	18	....	....
Machias[a]	135 days	47	69	17	86	1,829.79	375	2.78	59.15	10	....	1
Olympia	Year	498	233	64	297	596.38	1,878	5.13	10.50	23	....	2

4. PACIFIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Admissions. Injury.	Admissions. Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Adams	Year	231	207	18	225	974.03	2,196	6.00	25.97	13	5	....
Albatross	do	74	26	5	31	418.92	416	1.14	15.40	8	1	....
Bennington	do	178	113	28	141	792.13	1,514	4.14	23.26	17	1	....
Boston	do	289	238	26	264	913.49	2,027	5.54	19.17	37	8	1
Buffalo	do	581	312	50	362	623.06	2,774	7.58	13.05	28	....	1
Concord[a]	238 days	128	59	16	75	585.94	721	3.03	23.67	16	....	....
Marblehead	Year	267	64	14	78	292.13	861	2.35	8.05	30	2	....
New York	do	653	293	50	343	525.27	2,375	6.49	9.94	32	4	....
Ohio[b]	88 days	149	74	17	91	610.74	297	3.38	22.68	18	....	2
Paul Jones	Year	75	18	7	25	333.33	131	.36	4.80	3	....	....
Petrel	do	137	71	21	92	671.53	713	1.95	14.23	17	....	1
Preble	do	80	32	19	51	637.53	302	.83	10.38	11	....	1
Solace	do	338	97	27	124	366.83	2,710	7.40	21.89	62	3	1
Supply	do	138	103	15	118	855.07	1,075	2.94	20.58	22	....	....
Tacoma	do	288	107	33	140	486.11	1,012	2.77	9.62	55	....	1
Wheeling[a]	225 days	130	65	17	82	630.77	972	4.32	33.23	3	1	....
Wyoming	Year	197	109	22	131	664.97	889	2.43	12.33	18	4	....

5. ASIATIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Admissions. Injury.	Admissions. Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Albany[a]	212 days	181	75	29	104	574.59	1,132	5.34	29.50	16	4	....
Annapolis[a]	224 days	88	43	14	57	647.73	473	2.11	23.98	12	....	....
Cincinnati	Year	328	111	32	143	435.98	1,531	4.18	12.44	15	....	1
Don Juan de Austria[a]	123 days	47	11	1	12	255.32	81	.66	14.04	4	....	....
El Cano	Year	102	75	12	87	852.94	487	1.33	13.04	8	....	....
Frolic	do	75	70	11	81	1,080.00	438	1.20	16.00	3	....	....
Helena	do	206	74	14	88	427.18	499	1.36	6.60	8	....	1
Isla de Cuba[a]	161 days	59	27	2	29	491.53	220	1.37	23.22	10	....	....
Mohican	Year	223	130	29	159	713.01	1,948	5.82	23.85	41	....	....
Monadnock	do	264	130	31	161	609.85	1,877	5.13	19.43	20	....	1
Monterey[a]	349 days	127	66	9	75	590.55	1,161	3.33	26.22	12	....	....
New Orleans	Year	384	116	31	147	382.81	1,595	4.36	11.35	16	1	....
Oregon	do	552	239	56	295	534.24	4,492	12.27	22.23	60	....	2
Piscataqua	do	39	31	6	37	948.72	229	.63	16.15	3	....	1
Rainbow	do	388	137	18	155	399.48	1,482	4.05	10.43	32	2	....
Raleigh	do	322	112	40	152	472.05	1,250	3.42	10.62	10	2	2
San Francisco	do	328	236	36	272	829.27	2,983	8.15	24.84	13	....	....
Torpedo flotilla, first division.	do	400	209	23	232	580.00	1,548	4.23	10.58	32	....	2
Vicksburg[a]	196 days	81	37	2	39	481.48	661	3.37	41.61	5	....	....
Villalobos	Year	156	70	9	79	1,410.71	249	.68	12.14	....	....	1
Wilmington	do	775	67	14	81	462.86	1,220	3.33	19.03	8	....	2
Wisconsin	do	10	448	117	565	796.77	4,275	11.68	16.45	56	....	....
Wompatuck	do	38	16	2	18	473.68	148	.40	10.53	5	....	....

[a] Put out of commission.

[b] Commissioned.

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1904—Continued.

6. RECEIVING SHIPS.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Wabash, Boston	Year	444	203	14	217	488.74	311	.85	1.91	200	10	0
Hancock, New York	do	1,074	601	105	706	657.35	3,207	8.76	8.16	212	7	4
Lancaster, League Island	do	660	457	40	497	753.03	1,362	3.72	5.64	293	14	2
Franklin, Norfolk	do	1,634	1,463	108	1,571	961.44	5,324	14.55	8.29	345	88	2
Independence, Mare Island	do	543	226	38	264	486.18	1,187	3.24	5.96	169	24	4

7. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Navy-yards:												
Boston	Year	429	149	19	168	391.61	613	1.67	3.89	71	....	...
Cavite	do	580	415	65	480	862.07	5,358	14.64	25.24	84	2	1
League Island	do	355	314	52	366	1,030.98	1,364	3.73	10.51	132	4	1
Mare Island	do	325	227	54	281	864.82	2,395	6.54	20.12	113	26	2
New York	do	435	183	36	219	503.45	1,298	3.55	8.17	77	7	...
Norfolk	do	348	88	20	108	310.34	485	1.33	3.82	37	12	...
Pensacola	do	294	118	13	131	445.57	998	2.73	9.29	70	11	5
Portsmouth	do	152	73	10	83	546.05	318	.87	5.72	68	3	...
Puget Sound	do	340	79	31	110	323.53	1,034	2.83	8.32	54	6	...
Washington	do	295	160	25	185	627.12	517	1.41	4.78	107	3	...
Marine barracks and camps:												
Camp Elliot	do	610	1,033	81	1,114	1,826.23	9,770	26.69	43.75	24	3	...
Camp Elliot (on Yankee).	20 days	24	20	0	20	833.33	121	6.05	252.08	6	....	...
Culebra	Year	87	112	13	125	1,436.78	1,205	3.29	37.82	7	....	1
Olongapo	do	609	411	84	495	812.81	4,880	13.33	21.89	31	....	4
Pollok	155 days	21	12	6	18	857.14	91	.59	28.09	1	....	...
Port Isabela	30 days	4	4	1	5	1,250.00	16	.53	132.50	....	....	...
Seoul, Korea	275 days	28	14	1	15	535.71	145	.53	18.93	....	....	...
Washington	Year	343	242	42	284	827.98	1,469	4.01	11.69	102	....	1
Naval stations:												
Academy	do	1,119	965	113	1,078	963.35	7,156	19.55	17.47	21	3	4
Charleston, S. C	do	56	42	9	51	910.71	542	1.48	26.78	....	....	...
Dry Tortugas	do	35	37	5	42	1,200.00	233	.64	18.29	6	1	1
Guam	do	142	124	26	150	1,056.34	1,741	4.76	33.52	13	....	6
Guantanamo	91 days	101	136	8	144	1,425.74	1,622	17.82	176.44	22	....	...
Hawaii	Year	135	54	11	65	481.48	889	2.43	18.00	5	1	1
Indian Head	do	7	5	0	5	714.26	15	.04	5.71	....	....	...
Key West	do	59	109	17	126	2,137.59	1,836	5.02	85.06	3	4	2
Midway Islands	241 days	14	21	0	21	1,500.00	194	.81	57.86	1	....	...
New Orleans	139 days	22	16	2	18	818.18	205	1.47	66.82	3	1	...
Newport[a]	Year	1,012	482	52	534	527.66	1,735	4.74	4.68	354	1	...
Port Royal	do	80	29	12	41	512.50	154	.42	5.25	20	....	...
San Francisco[b]	do	600	760	63	823	1,371.67	6,406	17.51	29.18	107	38	4
Special duty:												
Philadelphia	do	......	15	0	15	....	180	.49	....	5	....	...
St. Louis Exposition.	218 days	97	61	14	75	773.19	579	2.66	26.39	....	1	...
San Francisco	Year	......	11	1	12	....	87	.23	....	5	....	...
Washington, D. C.	do	......	73	7	80	....	693	1.89	....	5	....	1

[a] Includes Constellation

[b] Includes Pensacola.

General aggregate, 1904.

8. FORCE AFLOAT.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	1	533	33	305	261	....	....	....	....	....	1	1,162
Class II.												
General infectious diseases (non-venereal)	54	3,020	322	2,322	997	8	1	....	1	15	57	19,462
Class III.												
Constitutional disorders of nutrition	6	80	16	37	56	6	1	....	....	....	2	1,073
Class IV.												
Diseases of the nervous system	14	1,228	123	1,033	262	45	6	4	1	4	10	7,658
Class V.												
Diseases of the visual apparatus	4	282	32	170	90	45	....	....	3	....	10	3,031
Class VI.												
Diseases of the auditory apparatus	4	184	41	153	59	13	....	....	....	....	4	1,182
Class VII.												
Diseases of the olfactory apparatus	....	43	1	37	6	1	....	....	....	....	....	125
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1— Diseases of the digestive apparatus	60	3,696	167	3,464	397	7	....	....	....	1	54	17,374
Subsidiary class 2— Diseases of the circulatory apparatus	9	308	53	192	129	37	....	....	....	3	9	4,190
Subsidiary class 3— Diseases of the respiratory apparatus	24	992	44	855	165	10	3	....	1	1	25	6,539
Class IX.												
Diseases of the motory apparatus	12	534	63	487	101	6	....	....	1	....	14	4,345
Class X.												
Diseases of the cutaneous apparatus	44	1,648	73	1,595	137	1	1	....	1	....	30	13,826
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	77	4,354	405	3,785	960	20	....	....	2	1	68	40,088
Class XII.												
Cysts and new growths	....	30	6	21	15	....	....	....	....	....	....	322
Class XIII.												
Injuries	65	2,939	125	2,587	381	29	....	....	1	77	54	26,223
Class XIV.												
Extraneous bodies	....	10	......	9	1	....	....	....	....	....	....	62
Class XV.												
Poisons	1	281	12	259	26	8	....	....	....	5	1	1,337
Class XVI.												
Feigned diseases	....	7	......	6	1	....	....	....	....	....	....	20
Total	375	20,169	1,516	17,317	4,044	226	12	4	11	107	339	148,019

Detailed statement, 1904.

9. FORCE AFLOAT.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Pediculus		18		17	1							23
Scabies		473	30	247	255						1	911
Tænia		18	2	20								44
Tinea favosa	1	2		3								13
Tinea trichophytina		20		17	3							134
Other diseases of this class		2	1	1	2							37
CLASS II:												
General infectious diseases (nonvenereal)—												
Cachexia malarialis		18	6	13	11							203
Catarrhus epidemicus	8	883	22	808	88						17	3,296
Cholera morbus		13		12	1							45
Denguis	5	86		89							2	705
Diphtheria		95	1	10	75						11	367
Dysenteria acuta	2	23	1	17	9							144
Dysenteria chronica	1	9	5	5	10							149
Erysipelas		17	1	11	7							151
Febris cerebro-spinalis		4			4							0
Febris enterica	5	122	18	44	93		1		1	5	1	2,306
Febris intermittens	3	433	112	519	29							2,366
Febris pneumonica	3	104	1	17	82					5	4	539
Febris recurrens		5		5								17
Febris remittens	4	227	26	231	22						4	1,574
Gangræna nosocomialis		1			1							0
Morbilli		289	42	84	245						2	1,068
Parotitis epidemica		71	1	42	30							431
Rheumatismus articularis acutus	14	283	31	214	101						13	2,928
Rheumatismus articularis chronicus	2	98	21	65	55	1						766
Rubella		53		25	28							166
Scarlatina		8			8							5
Septicæmia		5			4					1		29
Tuberculosis miliaris acuta		7		1	6							98
Tuberculosis pneumonica acuta		14	2		15					1		219
Tuberculosis pneumonica chronica	4	95	20	8	108	1				1	1	1,058
Tuberculosis *of other parts*		8	1	3	5	1						90
Vaccina	3	84	3	89	1							425
Varicella		5		1	3						1	46
Variola	4	14	8	12	11					2	1	264
Other diseases of this class	1	1		2								7
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia	5	51	12	28	36	2	1				1	702
Debilitas senilis		6	2	2	2	4						53
Diabetes insipidus		3		1	1						1	60
Diabetes mellitus	1	10	2	1	12							215
Hæmophilia		1		1								4
Lithæmia		3		2	1							24
Scorbutus		3			3							0
Other diseases of this class		3		2	1							15
CLASS IV:												
Diseases of the nervous system—												
Apoplexia		1								1		1
Aphasia	1	3		2	2							85
Cephalalgia	1	33	1	31	2	1					1	146
Chorea		2			2							0
Dementia	2	31	15	6	35	4		3				539
Epilepsia	2	68	17	33	37	16					1	652
Febris continua simplex	3	293	7	285	16						2	1,456
Febris ephemera		343	7	350								1,027
Febris thermica	1	11	1	10	3							51
Hemicrania		5		3	2							6
Hemiplegia		4	3	2	5							64
Insomnia			1		1							5
Mania		14	2		16							74
Melancholia		36	14	8	35	4		1			2	621
Meningitis		3	1	1	2					1		20
Monoplegia		2			1						1	6

Detailed statement, 1904—Continued.

9. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Myelitis		2								1	1	40
Nausea marina		51	8	50	4	5						233
Neuralgia	2	72	8	75	7							430
Neurasthenia	1	51	12	24	29	6	5					768
Neuritis		21	5	13	12						1	234
Neuritis multiplex		3			3							25
Neurosis hysteroidea		13	2	6	8	1						65
Paranoia		6		1	5							17
Paraplegia		2			1						1	84
Prostratio thermica		64	2	61	5							201
Sciatica		18	3	16	5							266
Sclerosis multiplex		1			1							2
Sclerosis spinalis posterior		1			1							15
Syncope		15		11	3					1		25
Torticollis spasmodica		8		7	1							25
Vertigo		35	5	30	6	3	1					168
Other diseases of this class	1	16	9	8	12	5			1			307
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		9			1	7					1	97
Amaurosis		2	1		1	1					1	52
Amblyopia		7			6	1						63
Asthenopia	1	4		2	1	2						51
Astigmatismus		3	3	2	3	1						23
Blepharitis		4	1	3	2							29
Cataracta		1			1							0
Chalazion		1			1							0
Conjunctivitis	2	110	11	101	19				1		2	1,170
Corneæ ulcus		5		4	1							30
Glaucoma		1		1								19
Hordeolus		8		8								31
Hypermetropia		8		3	3	2						70
Iritis	1	30	4	22	12						1	415
Keratitis		9	1	5	4				1			127
Leucoma		1			1							4
Myopia		43	4	6	6	29			1		5	579
Neuritis optica		6	2	2	6							44
Obstructio lacrimalis		1			1							1
Panophthalmitis			1		1							0
Pterygium		11		6	5							66
Retinitis		7	3	2	7	1						104
Sclerotitis		1	1	1	1							19
Trachoma		7		2	4	1						36
Other diseases of this class		3			3							1
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		2		2								4
Otalgia		8		6	2							26
Otitis externa	1	43	6	44	4						2	229
Otitis media	3	113	31	95	41	9					2	742
Surditas		17	4	6	11	4						170
Other diseases of this class		1			1							11
CLASS VII:												
Diseases of the olfactory apparatus—												
Rhinitis acuta		35		34	1							82
Rhinitis chronica		6	1	2	4	1						37
Other diseases of this class		2		1	1							6
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		3		1	2							7
Ani prolapsio		3		1	2							20
Ani rhagades		3		1	2							31
Appendicitis		106	15	47	73						1	976
Catarrhus gastricus acutus		188	6	185	7						2	851
Catarrhus gastricus chronicus	2	32	3	18	16	3						254

Detailed statement, 1904—Continued.

9. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Continued.												
Subsidiary class 1—Diseases of the digestive apparatus—Continued.												
Catarrhus intestinalis acutus	.....	143	5	143	3	....	....	....	....	....	2	638
Catarrhus intestinalis chronicus	.....	16	3	9	9	1	....	....	....	....	....	148
Cholelithiasis	.....	6	8	12	2	....	....	....	....	....	....	91
Colica	4	164	6	170	4	....	....	....	....	....	....	431
Constipatio	.....	68	1	67	1	1	....	....	....	....	....	191
Dentis caries	.....	11	......	9	2	....	....	....	....	....	....	25
Diarrhea simplex	1	815	14	322	7	....	....	....	....	....	1	1,306
Dyspepsia nervosa	.....	6	1	6	......	1	....	....	....	....	....	44
Fistula in ano	.....	29	6	14	21	....	....	....	....	....	....	136
Gastralgia	.....	11	......	10	1	....	....	....	....	....	....	53
Hæmatemesis	.....	4	......	3	1	....	....	....	....	....	....	6
Hæmorrhois	1	149	15	89	72	....	....	....	....	....	4	1,039
Hepatis congestio	.....	11	......	10	......	....	....	....	....	....	1	65
Hepatitis acuta	.....	3	......	3	......	....	....	....	....	....	....	28
Hepatitis chronica	.....	1	......	......	1	....	....	....	....	....	....	4
Hepatitis suppurativa	.....	1	......	......	1	....	....	....	....	....	....	1
Hypertrophia tonsillaris	.....	3	......	2	1	....	....	....	....	....	....	26
Icterus	.....	67	8	57	16	....	....	....	....	....	2	612
Obstructio intestinalis	.....	3	2	5	2	....	....	....	....	....	....	32
Odontalgia	.....	8	......	8	......	....	....	....	....	....	....	32
Parulis	.....	2	......	1	1	....	....	....	....	....	....	17
Periodontitis	.....	4	......	3	1	....	....	....	....	....	....	6
Periproctitis	.....	1	......	1	......	....	....	....	....	....	....	5
Peritonitis	.....	1	......	......	......	....	....	....	....	1	....	1
Pharyngitis	1	71	......	71	......	....	....	....	....	....	1	237
Stomatitis	1	10	1	12	......	....	....	....	....	....	....	92
Tonsillitis	50	2,234	73	2,174	142	1	....	....	....	....	40	9,734
Typhlitis	.....	4	......	2	2	....	....	....	....	....	....	17
Ulcus gastricum	.....	2	......	1	1	....	....	....	....	....	....	17
Other diseases of this class	.....	13	......	9	4	....	....	....	....	....	....	176
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Angina pectoris	.....	5	1	4	2	....	....	....	....	....	....	74
Arteriosclerosis	.....	1	......	......	......	1	....	....	....	....	....	43
Cordis dilatatio	.....	3	......	2	......	....	....	....	....	1	....	9
Cordis hypertrophia	.....	1	2	2	1	....	....	....	....	....	....	15
Cordis palpitatio	1	56	23	34	33	12	....	....	....	....	1	776
Cordis valvularum morbus	4	54	8	11	29	23	....	....	....	2	1	819
Endocarditis	.....	1	......	......	1	....	....	....	....	....	....	7
Myocarditis	.....	......	1	......	1	....	....	....	....	....	....	39
Pericarditis	.....	2	......	1	1	....	....	....	....	....	....	3
Phlebitis	.....	8	1	6	3	....	....	....	....	....	....	157
Thrombosis	.....	2	1	3	......	....	....	....	....	....	....	23
Varix	1	16	4	9	10	1	....	....	....	....	1	108
B—Lymphatics—												
Bronchocele	.....	3	......	......	3	....	....	....	....	....	....	2
Lymphadenitis	2	128	9	95	38	....	....	....	....	....	6	1,839
Lymphangitis	.....	18	......	15	3	....	....	....	....	....	....	113
Other diseases of this class	1	10	3	10	4	....	....	....	....	....	....	163
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma	1	22	13	18	13	3	1	....	....	....	1	288
Bronchopneumonitis	1	51	4	37	19	....	....	....	....	....	....	620
Bronchitis acuta	9	352	6	327	30	....	....	....	....	....	10	1,995
Bronchitis chronica	4	47	8	24	29	6	....	....	....	....	....	794
Catarrhus bronchialis	2	341	3	321	16	....	....	....	....	....	9	1,341
Emphysema pulmonalis	.....	2	......	1	1	....	....	....	....	....	....	4
Hæmoptysis	1	18	3	10	12	....	....	....	....	....	....	187
Laryngitis acuta	1	43	1	39	4	....	....	....	....	....	2	305
Laryngitis chronica	1	5	......	1	5	....	....	....	....	....	....	55
Œdema pulmonalis	.....	2	......	1	......	....	....	....	....	1	....	7
Pleuritis acuta	2	83	2	63	22	....	1	....	....	....	1	718
Pleuritis chronica	2	17	3	7	11	1	1	....	....	....	2	201
Pleuritis purulenta	.....	1	1	......	2	....	....	....	....	....	....	2
Other diseases of this class	.....	8	......	6	1	....	....	....	1	....	....	22

Detailed statement, 1904—Continued.

9. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis	1	4			5							86
Arthritis		41	12	39	12	1					1	438
Arthritis deformans		2		1	1							6
Bursitis		23	1	16	8							219
Caries		5		1	4							24
Contractura		2	2	2	2							25
Gangræna		1		1								36
Myalgia acuta	8	319	27	327	18				1		8	1,918
Myalgia chronica	1	27	7	19	12	3					1	367
Necrosis		9	1	5	5							158
Ostitis		8	1	1	7						1	94
Osteomyelitis	1		2	1	2							96
Periostitis		27	2	20	9							261
Synovitis	1	52	6	42	15						2	500
Thecitis		9		8							1	53
Other diseases of this class		5	2	4	1	2						69
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	16	676	29	653	61						7	5,709
Acne		7		7								38
Carbunculus	1	34		32	2						1	215
Cellulitis	4	135	2	127	10						4	1,289
Clavus	1	8	1	9	1							58
Cutis fissuræ		8		8								117
Ecthyma	1	5	1	4	3							77
Eczema	5	70	6	64	12	1					4	737
Erythema	1	22		19	4							250
Furunculus	10	390	17	405	5						7	2,316
Herpes simplex		4		4								14
Herpes zoster		19		19								191
Impetigo		14		13	1							128
Lichen		6		6								52
Onychia		5		5								30
Paronychia		26	1	24					1		2	367
Pemphigus		5		5								41
Pityriasis		2		1	1							20
Psoriasis		5		1	4							33
Ulcus	4	144	14	126	30		1				5	1,670
Unguis involutus	1	36		35	2							270
Urticaria		14	1	15								51
Verruca		7		7								68
Other diseases of this class		6	1	6	1							90
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	19	724	67	636	154	1			1		18	12,725
Arthritis gonorrhoica	3	126	22	65	77	1					8	1,930
Balanitis		36		36								152
Calculus		2	1	1	2							57
Chancroid	5	489	28	455	62						5	8,269
Cystitis	1	61	8	48	21	1						814
Enuresis		14	1	3	10	2						72
Epididymitis	9	272	31	262	40						10	3,399
Fistula urinalis		2			2							1
Gonorrhœa	12	1,288	66	1,264	92	1			1		8	5,023
Hæmaturia		3		2	1							6
Hydrocele		21	2	8	14						1	210
Nephritis acuta		15	3	7	10					1		188
Nephritis chronica		16	4	4	13	2					1	118
Nephrolithiasis		17	4	17	4							206
Ophthalmia gonorrhoica		21	3	10	13						1	161
Orchitis	11	311	32	308	42						4	8,702
Paraphimosis		19		16	3							204
Phimosis	2	116	3	97	22	1					1	1,110
Prostatitis		9		7	2							137
Pyelitis		2	1	1	2							58
Spermatorrhœa		1	1	2								2

Detailed statement, 1904—Continued.

9. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XI—Continued.												
Venerial diseases and diseases of the genito-urinary apparatus—Continued.												
Syphilis consecutiva	11	530	114	363	275	8					9	4,922
Syphilis primitiva	3	102	6	83	27	1						957
Urethræ strictura		48	3	34	17							215
Urina suppressa	1			1								8
Urinæ retentio		9		7	2							65
Varicocele		64	4	17	48	2					1	270
Verruca acuminata		19	1	17	3							69
Other diseases of this class		17		14	2						1	108
CLASS XII:												
Cysts and new growths—												
Adenoma		2			2							5
Chondroma		1		1								45
Cystis		13	1	11	3							82
Epithelioma		1	2	1	2							28
Fibroma		6	1	4	3							60
Lipoma		4		2	2							10
Osteoma		3	2	2	3							92
CLASS XIII:												
Injuries—												
Abrasio	2	57	1	57	1						2	380
Ambustio ex calore	5	215	1	170	11					32	8	1,455
Ambustio ex frigore		3		1	1					1		9
Asphyxia		7		1						6		9
Asphyxia ex submersione		25		2						23		30
Concussio		26	1	21	6							136
Contusio	14	641	12	628	26					1	12	4,034
Deformitas	1	37	15	21	22	10						632
Fractura	9	248	19	189	72					6	9	4,669
Hernia	3	134	29	24	126	15					1	1,369
Ictus electricus		1		1								4
Luxatio	1	57	3	46	11	2				1	1	663
Membranæ tympani ruptio		7		6	1							24
Membri clades		5		2		2					1	48
Musculi ruptio		5		4	1							38
Visceris ruptio		1	1	1	1							22
Sole excoctus		23		22							1	98
Stremma	9	508	22	502	30				1		6	3,787
Virium defectio		2		2								11
Vulnus contusum	5	189	2	183	10						3	1,546
Vulnus incisum	3	195	5	185	12					2	4	1,871
Vulnus laceratum	11	416	7	396	33						5	4,314
Vulnus punctum		88	5	83	5							590
Vulnus sclopeticum	2	37	1	24	10					5	1	315
Other diseases of this class		17	1	16	2							169
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		10		9	1							62
CLASS XV:												
Poisons—												
Alcoholismus	1	159	9	151	16	1				1		443
Dermatitis venenata		22		22								110
Venenum irritans		15	1	15						1		29
Venenum neuroticum		16	2	8	5	2				3		231
Vulnus venenatum		64		58	5						1	508
Other diseases of this class		5		5								16
CLASS XVI:												
Feigned diseases—												
Ankylosis		1		1								1
Erythema		1		1								7
Gastralgia		1		1								2
Myalgia acuta		2		2								4
Malingering		2		1	1							6
Total	375	20,169	1,516	17,317	4,044	226	12	4	11	107	339	148,019

General aggregate, 1904.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	11	246	38	244	50	....	....	....	....	....	1	2,323
Class II.												
General infectious diseases (non-venereal)	18	2,244	392	2,192	432	5	6	....	....	5	14	15,684
Class III.												
Constitutional disorders of nutrition	....	42	3	26	14	2	1	....	....	1	1	367
Class IV.												
Diseases of the nervous system	10	415	22	303	113	21	1	4	....	....	5	2,767
Class V.												
Diseases of the visual apparatus	4	143	10	101	39	13	....	....	....	....	4	1,203
Class VI.												
Diseases of the auditory apparatus	2	119	18	88	41	7	1	....	....	....	2	780
Class VII.												
Diseases of the olfactory apparatus	....	39	....	31	8	....	....	....	....	....	....	106
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	46	1,251	46	1,133	168	5	3	....	....	3	31	5,805
Subsidiary class 2—Diseases of the circulatory apparatus	....	121	16	67	48	18	1	....	....	1	2	1,315
Subsidiary class 3—Diseases of the respiratory apparatus	7	379	15	317	68	9	1	....	....	1	5	2,202
Class IX.												
Diseases of the motory apparatus	6	153	12	128	29	8	1	....	....	....	5	1,311
Class X.												
Diseases of the cutaneous apparatus	10	448	26	424	52	1	....	....	....	....	7	4,082
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	21	956	80	700	314	19	1	....	1	....	22	10,273
Class XII.												
Cysts and new growths	....	18	2	11	7	....	1	....	....	....	1	167
Class XIII.												
Injuries	12	744	27	594	138	18	3	....	1	19	10	7,026
Class XIV.												
Extraneous bodies	....	4	....	3	1	....	....	....	....	....	....	23
Class XV.												
Poisons	4	140	4	116	26	1	....	....	....	4	1	729
Class XVI.												
Feigned diseases	....	5	....	5	....	....	....	....	....	....	....	50
Total	151	7,467	711	6,483	1,548	127	20	4	2	34	111	56,213

Detailed statement, 1904.

11. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		4	1	5								18
Pediculus		4		4								5
Pityriasis		2		2								5
Pulex penetrans		3	1	4								15
Scabies	10	192	26	178	49						1	1,681
Tænia		3		2	1							9
Tinea trichophytina	1	37	10	48								583
Other diseases of this class		1		1								7
CLASS II:												
General infectious diseases (nonvenereal)—												
Cachexia malarialis		17	1	7	11							159
Catarrhus epidemicus	1	214	5	204	15						1	995
Denguis		325	7	330	1						1	2,094
Diphtheria		79		2	77							17
Dysenteria acuta	1	31	2	26	8							331
Dysenteria chronica		12	2	7	7							113
Erysipelas		6		3	3							53
Febris cerebro-spinalis		2								1	1	40
Febris enterica		46	2	10	31	1	3			1	2	716
Febris intermittens	3	378	182	535	25						3	2,782
Febris pneumonica		43	1	14	26					3	1	362
Febris remittens	3	529	159	663	27						1	8,984
Morbilli		76	1	53	24							510
Neuritis endemica		1		1								16
Parotitis epidemica	5	145	3	146	7							1,298
Rheumatismus articularis acutus		96	18	71	39	1					3	946
Rheumatismus articularis chronicus	1	33	5	20	18						1	275
Rubella		66	1	9	58							55
Scarlatina		3			3							0
Septicæmia		2			2							5
Tuberculosis miliaris acuta		2			2							3
Tuberculosis pneumonica acuta		4			4							6
Tuberculosis pneumonica chronica		47	1	3	39	3	3					829
Vaccina	4	77	2	79	4							454
Varicella		7		7								105
Variola		1			1							1
Other diseases of this class		2		2								85
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia		25		16	7		1				1	206
Debilitas senilis		1	1	1	1							4
Diabetes insipidus		3			3							14
Diabetes mellitus		7	1	3	2	2				1		90
Leucocythæmia		1		1								18
Lithæmia		3	1	4								33
Other diseases of this class		2		1	1							2
CLASS IV:												
Diseases of the nervous system—												
Apoplexia	1					1						57
Cephalalgia		50	2	50	2							127
Chorea		2			2							5
Dementia		9		3	4	1		1				43
Epilepsia	2	29	4	9	21	4					1	348
Febris continua simplex	2	79		63	15						3	482
Febris ephemera		59		57	2							207
Febris thermica		5	1	5	1							43
Hemicrania		1	1	1	1							25
Hemiplegia	1	2		1	1	1						101
Insomnia		3	1	3	1							28
Irritatio spinalis		1		1								3
Mania		5		1	4							26
Melancholia		11	1	2	6	2		2				98
Meningitis		1			1							1
Neuralgia		29	2	21	10							111

Detailed statement, 1904—Continued.

11. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Neurasthenia	3	50	3	27	20	7	1				1	535
Neuritis		15	1	8	8							115
Neuritis multiplex		2		1	1							20
Neurosis hysteroidea		1		1								3
Prostratio thermica		12		8	4							54
Sciatica		7		3	4							31
Syncope		8		8								37
Torticollis spasmodica		1		1								9
Vertigo		22		20	2							59
Other diseases of this class	1	11	6	9	3	5		1				199
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		2				2						2
Amaurosis		2		1	1							59
Amblyopia		4	1	1	2	2						44
Asthenopia		4		2	2							4
Astigmatismus		7	1	4	1	3						61
Cataracta		3			3							7
Conjunctivitis	1	71	4	62	11	1					2	547
Corneæ ulcus		2		2								47
Hordeolus		7		7								14
Hypermetropia	1	5	1	4	2	1						107
Iritis	1	9	1	8	1						2	149
Keratitis		5		1	4							28
Leucoma	1					1						15
Myopia		12	1	3	7	3						70
Neuritis optica		1			1							0
Pterygium		5	1	4	2							25
Retinitis		2		2								17
Trachoma		2			2							7
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		1		1								1
Otalgia		4		4								19
Otitis externa		15	1	16								110
Otitis media	2	81	14	58	35	2	1				1	455
Surditas		17	3	9	5	5					1	195
Other diseases of this class		1			1							0
CLASS VII:												
Diseases of the olfactory apparatus—												
Catarrhus æstivus		2		2								6
Rhinitis acuta		26		26								51
Rhinitis chronica		9		3	6							49
Other diseases of this class		2			2							0
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		4			4							0
Ani rhagades		3	1		4							1
Appendicitis		29	3	15	15		1			1		179
Catarrhus gastricus acutus		66	4	63	7							305
Catarrhus gastricus chronicus	1	17	3	10	8	1	2					202
Catarrhus intestinalis acutus		43		40	2						1	229
Catarrhus intestinalis chronicus		16	3	11	8							125
Cholelithiasis	1	3		1	3							41
Colica	1	57	1	52	7							205
Constipatio		32	1	32							1	71
Dentis caries		4		2		1					1	34
Diarrhea simplex		240	4	238	5						1	980
Dyspepsia nervosa		6		5	1							20
Fistula in ano		8		3	5							60
Gastralgia		1		1								6
Glossitis		1			1							5
Hematemesis		1		1								12

Detailed statement, 1904—Continued.

11. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Continued.												
Subsidiary class 1—Diseases of the digestive apparatus—Continued.												
Hemorrhois		53	1	26	26	1					1	334
Hepatis congestio	1	25		23	2						1	78
Hepatitis acuta		3		3								22
Hepatitis suppurativa		3			1					2		31
Hypertrophia tonsillaris		4		2	2							6
Icterus	1	23		13	11							109
Odontalgia		7		7								18
Œsophagostenosis		1			1							4
Periproctitis		1		1								15
Peritonitis		2		2								28
Pharyngitis	1	40	1	38	3						1	119
Stomatitis		10	1	11								65
Tonsillitis	40	539	22	528	48	2					23	2,447
Typhlitis		2		1							1	66
Ulcus gastricum		1	1		2							10
Other diseases of this class		6		4	2							33
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Angina pectoris		5	3	5	2		1					61
Cordis dilatatio		2		1						1		15
Cordis hypertrophia		1				1						1
Cordis palpitatio		30	4	17	11	5					1	438
Cordis valvularum morbus		24	3	9	11	7						291
Embolismus		1				1						46
Endocarditis		3		1	1	1						27
Myocarditis		4	1	2	3							33
Phlebitis		1		1								6
Varix		8	2	2	8							49
B—Lymphatics—												
Bronchocele		4		1	2	1						29
Lymphadenitis		30	8	24	7	2						294
Lymphangitis		6		3	2						1	24
Other diseases of this class		2		1	1							1
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma		12	5	13	2	1					1	126
Bronchopneumonitis		3		1	1					1		20
Bronchitis acuta	2	145	4	125	23	2					1	919
Bronchitis chronica		32	6	13	18	6	1					329
Catarrhus bronchialis	3	147		132	15						3	568
Hemoptysis		3		3								10
Laryngitis acuta		12		12								42
Laryngitis chronica		2		1	1							9
Pleuritis acuta	2	17		14	5							144
Pleuritis chronica		6		3	3							35
CLASS IX.												
Diseases of the motory apparatus—												
Ankylosis		2				2						50
Arthritis		12	1	7	3	3						228
Arthritis deformans	1					1						15
Bursitis		5		4	1							40
Myalgia acuta	4	86	7	87	5		1				4	614
Myalgia chronica		19	3	13	8	1						131
Necrosis		5		1	4							31
Periostitis		3		2							1	91
Synovitis	1	16	1	11	7							99
Thecitis		4		3	1							11
Other diseases of this class		1				1						1
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	5	141	5	129	20						2	1,092
Acne		6	1	5	2							27

Detailed statement, 1904—Continued.

11. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.					Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.	Deserted.			
CLASS X—Continued.												
Diseases of the cutaneous apparatus—Continued.												
Carbunculus	1	5		4	2							64
Cellulitis		18	1	16	2						1	494
Clavus		6	1	7								90
Ecthyma		3		2	1							24
Eczema	1	41	5	37	9						1	370
Erythema		1		1								11
Furunculus		98	8	101								598
Herpes simplex		4		4								17
Herpes zoster		6		5	1							33
Lichen		1		1								3
Onychia		2		2								36
Paronychia		7		7								54
Pernio		1			1							0
Psoriasis		3	2	2	3							43
Ulcus	3	55	4	54	4	1					3	651
Unguis involutus		33	8	34	2							419
Urticaria		7	1	7	1							37
Verruca		2		2								6
Other diseases of this class		8		4	4							18
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	2	184	14	131	62	1					6	2,949
Arthritis gonorrhoica	1	28	6	17	16	1					1	434
Balanitis		3		2	1							6
Chancroid	4	50	4	39	17	1					1	587
Cystitis		22		10	12							173
Enuresis	1	19	2	14	7	1						98
Epididymitis	1	78	5	70	10	2					2	972
Gonorrhœa	6	182	11	155	36	1			1		6	1,305
Hæmaturia		5		4	1							19
Hydrocele		7		8	4							20
Nephritis acuta	1	10	1	4	8							61
Nephritis chronica		12	1	3	8	1	1					115
Nephrolithiasis		1			1							1
Ophthalmia gonorrhoica		4		1	3							5
Orchitis	1	76	9	58	24	8					1	983
Paraphimosis		5		2	2						1	12
Phimosis	1	34	2	25	11						1	358
Prostatitis		3			3							14
Spermatorrhœa		1			1							0
Syphilis consecutiva	2	143	18	110	45	6					2	1,419
Syphilis primitiva		16		10	6							187
Urethræ strictura	1	19	1	13	7						1	104
Urethritis simplex		1		1								2
Urina suppressa		1		1								4
Urinæ retentio		4		1	3							3
Varicocele		33	3	17	18	1						358
Verruca acuminata		8		5	3							77
Other diseases of this class		7	3	4	5	1						57
CLASS XII:												
Cysts and new growths—												
Adenoma		3		1	2							27
Angeioma		1			1							5
Cystis		6	2	4	3						1	39
Epithelioma		1					1					19
Fibroma		1		1								3
Glioma		1		1								11
Lipoma		2		2								18
Other diseases of this class		3		2	1							45
CLASS XIII:												
Injuries—												
Abrasio	1	14		15								60
Ambustio ex calore		20	1	19	2							188
Ambustio ex frigore		1		1								31
Asphyxia ex submersione		11								11		11
Concussio	1	15		14						2		162
Contusio		122		103	17		1				1	813
Deformitas	1	20	2	3	13	7						324

Detailed statement, 1904—Continued.

11. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class XIII—Continued.												
Injuries—Continued.												
Fractura	4	74	8	58	20	3				3	2	1,497
Hernia	1	52	6	11	40	5	1				2	432
Luxatio		25	1	21	5							286
Membranæ tympani ruptio		5		4	1							19
Stremma	1	192	4	177	17	1	1				1	1,738
Virium defectio		2	1	1	1	1						31
Vulnus contusum		30		28	2							118
Vulnus incisum	2	41	2	38	6				1			478
Vulnus laceratum	1	76	1	68	7	1					2	603
Vulnus punctum		27		23	2					1	1	157
Vulnus sclopeticum		16	1	9	5					2	1	179
Other diseases of this class		1		1								4
Class XIV:												
Extraneous bodies—												
Corpus extraneum		4		3	1							23
Class XV:												
Poisons—												
Alcoholismus	1	91	2	71	20					2	1	365
Dermatitis venenata	1	16	1	18								134
Venenum irritans		3		1						2		11
Venenum neuroticum	1	6		2	4	1						18
Vulnus venenatum	1	22	1	22	2							190
Other diseases of this class		2		2								16
Class XVI:												
Feigned diseases—												
Eplepsia		1		1								2
Eneurisis		1		1								1
Malingering		1		1								1
Rheumatismus chronica		1		1								45
Surditas		1		1								1
Total	151	7,467	711	6,483	1,548	127	20	4	2	34	111	56,218

General aggregate, 1904.

TABLE 12.—NAVAL HOSPITALS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	35	21	306	327	1	3	....	....	2	....	29	7,258
Class II.												
General infectious diseases (non-venereal)	110	232	1,413	1,221	158	172	6	....	16	48	134	60,565
Class III.												
Constitutional disorders of nutrition	8	11	73	60	14	10	4	....	....	1	3	2,718
Class IV.												
Diseases of the nervous system	19	69	365	186	23	128	16	45	8	4	43	12,281
Class V.												
Diseases of the visual apparatus	14	21	133	81	12	51	2	....	....	....	22	6,077
Class VI.												
Diseases of the auditory apparatus	14	14	100	53	5	61	1	....	1	....	7	3,800
Class VII.												
Diseases of the olfactory apparatus	1	2	12	4	....	8	....	....	....	....	3	535
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	55	46	580	543	17	82	10	....	7	7	65	18,166
Subsidiary class 2—Diseases of the circulatory apparatus	18	35	195	108	16	91	3	....	3	7	25	8,512
Subsidiary class 3—Diseases of the respiratory apparatus	32	31	228	204	12	41	....	....	1	4	29	9,260
Class IX.												
Diseases of the motory apparatus	13	18	124	93	5	36	....	....	2	....	19	6,470
Class X.												
Diseases of the cutaneous apparatus	31	35	187	205	1	13	3	....	....	....	31	10,946
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	183	213	1,312	1,170	36	246	4	....	25	5	222	73,499
Class XII.												
Cysts and new growths	5	4	24	19	1	6	....	....	....	2	5	1,144
Class XIII.												
Injuries	55	76	501	356	21	144	11	....	11	7	82	25,671
Class XIV.												
Extraneous bodies	....	....	3	1	....	2	....	....	....	....	....	155
Class XV.												
Poisons	5	14	56	51	....	10	....	....	1	3	10	1,065
Class XVI.												
Feigned diseases	....	....	1	....	....	1	....	....	....	....	....	7
Total	598	842	5,613	4,677	322	1,055	60	45	77	88	729	248,129

Detailed statement 1904.

13. NAVAL HOSPITALS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Actinomycosis		1	1	1	1							71
Pityriasis			1	1								15
Scabies	35	18	298	318		3			2		28	6,986
Tænia			1	1								6
Tinea trichophytina			4	4								130
Other diseases of this class		2	1	2							1	50
CLASS II:												
General infectious diseases (nonvenereal)—												
Cachexia malarialis	4	3	22	15	5	5	1		1		2	1,281
Catarrhus epidemicus	2	12	43	54		1					2	997
Denguis		1	1	2								37
Diphtheria	11	20	152	181						1	1	5,093
Dysenteria acuta			11	9	1				1			277
Dysenteria chronica	4	2	27	16	4	8					5	1,304
Erysipelas	3	2	10	14						1		372
Febris cerebro-spinalis		4	3	1		2				4		286
Febris enterica	12	26	93	97	6	1	1		1	13	12	5,869
Febris flava		1								1		1
Febris intermittens	3	6	47	52	1						3	962
Febris pneumonica	16	9	101	107	1	2			1	2	13	4,158
Febris remittens	2	3	52	52							5	1,283
Morbilli	1	18	239	243					2		13	3,524
Parotitis epidemica	1	3	35	39								669
Rheumatismus articularis acutus	10	4	139	102	7	30			3	1	10	6,413
Rheumatismus articularis chronicus	7	14	88	67	12	22			2		6	3,872
Rubella	1	3	88	85					5		2	1,129
Scarlatina		6	4	5						1	4	242
Septicæmia		3	7	5			2			2	1	448
Tuberculosis miliaris acuta		3	1							3		157
Tuberculosis pneumonica acuta	4	13	24	11	17	10				1	1	1,499
Tuberculosis pneumonica chronica	27	74	208	47	102	88	2			17	53	20,028
Tuberculosis *of other parts*	1	1	6	3	2	2					1	228
Vaccina	1		5	6								181
Varicella			2	2								32
Variola			4	4								132
Other diseases of this class		1	1	1		1						91
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia	7	3	45	40	8	5	1				1	1,643
Debilitas senilis		2	2	2		1	1					169
Diabetes insipidus			4	2	1						1	111
Diabetes mellitus		1	16	10	4	2				1		468
Lithæmia			1				1					10
Scorbutus			3	3								56
Other diseases of this class	1	5	2	3	1	2	1				1	261
CLASS IV:												
Diseases of the nervous system—												
Apoplexia	1									1		113
Aphasia			2	1	1							49
Cephalalgia		3	2	3	1		1					116
Chorea		2	4			5					1	197
Dementia	5	6	36	4	3	16		23			1	759
Epilepsia		3	55	19		29	2		2		6	1,374
Febris continua simplex	1	2	34	32		1			1		3	644
Febris ephemera		10	2	12								179
Febris thermica			8	2							1	34
Hemiplegia	1	2	5	1		3					4	561
Insomnia			2	1	1							144
Irritatio spinalis		1				1						9
Mania		2	17	4		3		7			5	221
Melancholia	4	7	37	11	6	13	2	10			6	1,159
Meningitis		1	5	2	1	1				2		229
Monoplegia			2	1		1						153
Myelitis		1								1		4

Detailed statement 1904—Continued.

13. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Nausea marina		2	2			4						63
Neuralgia		3	17	13	1	3			1		2	757
Neurasthenia	2	6	50	22	4	17	8		2		5	1,491
Neuritis		6	25	19	3	4	1		1		3	1,293
Neuritis multiplex			3	2							1	244
Neurosis hysteroidea		2	7	7		2						160
Paranoia		1	7	2		3		3				179
Paraplegia	1	1	2	3		1						459
Prostratio thermica			5	4			1					186
Sciatica	1		11	8	1	2					1	482
Sclerosis lateralis amyotrophica		1				1						10
Sclerosis multiplex		1	1	1		1						13
Sclerosis spinalis posterior	2	2	1			3	1				1	526
Syncope			4	4								51
Vertigo		1	11	5	1	3			1		2	203
Other diseases of this class	1	3	13	3		11		2			1	269
CLASS V:												
Diseases of the visual apparatus—												
Amaurosis	1	3	3		1	5					1	178
Amblyopia		3	10		2	5					6	548
Asthenopia		1	3	1		3						140
Astigmatismus	1		3	2		2						162
Blepharitis			2	2								40
Cataracta			5	1	1	2					1	123
Chalazion			1	1								18
Conjunctivitis	2	1	29	26	1	4					1	1,432
Dacryocystitis	1		2	1		1					1	151
Hypermetropia		2	3			3	1				1	159
Iritis		3	20	17	1	1					4	608
Keratitis	2		8	6	1	1					2	398
Leucoma	2	1	3	1	1	3	1					134
Myopia	1	3	10	3		9					2	359
Neuritis optica	1	1	10	4	2	6						642
Obstructio lacrimalis			2			2						62
Pterygium	2	3	6	9							2	382
Retinitis	1		5	1	1	4						221
Sclerotitis			1	1								47
Trachoma			4	3							1	98
Other diseases of this class			3	2	1							175
CLASS VI:												
Diseases of the auditory apparatus—												
Otalgia			2	2								56
Otitis externa	1	1				2						84
Otitis media	13	8	78	42	2	47	1		1		6	2,725
Surditas		4	18	7	3	12						742
Other diseases of this class		1	2	2							1	243
CLASS VII:												
Diseases of the olfactory apparatus—												
Rhinitis chronica	1	1	11	3		7					3	467
Other diseases of this class		1	1	1		1						68
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		1	4	5								68
Ani prolapsio	2		2	3		1						93
Ani rhagades			6	4		1					1	128
Appendicitis	10	5	94	77	9	3	2		1	3	14	4,168
Catarrhus gastricus acutus	1	1	11	11		1					1	278
Catarrhus gastricus chronicus	3	3	27	16	2	4	5				6	1,080
Catarrhus intestinalis acutus		2	5	7								123
Catarrhus intestinalis chronicus	5	1	18	15	1	3	2				3	949
Cholelithiasis			6	4					1		1	160
Cholecystitis		1								1		29

Detailed statement, 1904—Continued.

13. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Continued.												
Subsidiary class 1—Diseases of the digestive apparatus—Continued.												
Colica		1	8	9								206
Constipatio	1		3	2		1					1	238
Dentis caries		1	2	2		1						63
Diarrhœa simplex			14	13							1	362
Dyspepsia nervosa			1	1								33
Fistula in ano	4	4	25	26		1			1		5	1,847
Gastralgia	1		1	2								24
Glossitis			1	1								28
Hæmatemesis			2	1							1	46
Hæmorrhois	7	8	98	92	2	7	1		2		9	2,831
Hepatis congestio			3	2		1						216
Hepatitis acuta	1			1								59
Hepatitis chronica			1	1								26
Hepatitis suppurativa		2	2		1					2	1	294
Hypertrophia tonsillaris			4	4								53
Icterus	1	4	26	26	1	2					2	977
Obstructio intestinalis			1	1								1
Œsophagostenosis			1			1						29
Parulis			1	1								15
Periodontitis			1	1								13
Peritonitis		1	1	1						1		56
Pharyngitis	1		3	4								58
Stomatitis	1			1								59
Tonsillitis	17	9	197	200		3			2		18	3,239
Ulcus gastricum			3	3								78
Other diseases of this class		2	8	6	1	2					1	271
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma	2	2	2			2				3	1	349
Angina pectoris	1		5	1		4					1	224
Cordis dilatatio		1		1								24
Cordis hypertrophia			1			1						26
Cordis palpitatio	3	3	45	14	5	28					4	1,349
Cordis valvularum morbus	2	18	42	11	7	37	1			1	5	1,563
Embolismus		1	1							2		2
Endocarditis		1	2	1		2						100
Myocarditis			2	1			1					34
Pericarditis			3	2	1							147
Phlebitis	1		1	2								38
Varix	1		19	13		3			1		3	1,186
B—Lymphatics—												
Bronchocele	1	4	6			10					1	360
Lymphadenitis	3	4	53	43	2	4	1		1		9	2,548
Lymphadenoma	1									1		88
Lymphangitis	2	1	2	4	1							49
Other diseases of this class	1		11	10					1		1	425
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma		1	14	5		8					2	394
Bronchopneumonitis	4	1	15	14		1				3	2	669
Bronchitis acuta	4	2	53	52		4					3	1,762
Bronchitis chronica	9	7	51	41	6	14					6	2,010
Catarrhus bronchialis	7	2	30	33		1					5	821
Emphysema pulmonalis		2	2	2	1						1	59
Hæmoptysis		1	9	5	2	1			1		1	429
Laryngitis acuta	1	1	4	4						1	1	130
Laryngitis chronica	2		7	5	1	3						188
Pleuritis acuta	4	5	27	30	1	1					4	1,102
Pleuritis chronica		2	14	8	1	5					2	851
Pleuritis purulenta	1	6	1	5		3						737
Other diseases of this class		1	1								2	108
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis	1	1	7	2	1	5					1	335
Arthritis	1	3	14	9	2	5			1		1	871

Detailed statement, 1904—Continued.

13. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IX—Continued.												
Diseases of the motory apparatus—Continued.												
Arthritis deformans		1	1	1		1						63
Bursitis		1	10	8		1					2	347
Caries	1		5	3		1					2	354
Contractura			1	1								26
Myalgia acuta	1	2	21	16	2	4					2	628
Myalgia chronica	2	1	17	10		7					3	660
Necrosis	3	2	8	9		2					2	883
Ostitis	1	1	6	5		2			1			274
Osteomyelitis			2	1							1	267
Periostitis			9	8							1	280
Synovitis	8	5	21	19		6					4	1,365
Thecitis			2			2						100
Other diseases of this class		1		1								17
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	11	14	78	90	1	1	1				10	4,635
Acne	1	2	3	5							1	418
Carbunculus			4	4								238
Cellulitis	2	4	18	15		1					3	692
Clavus	1		1	1		1						69
Ecthyma		2	4	6								232
Eczema	3	2	21	19		4					3	849
Erythema			4	3		1						41
Furunculus		2	5	5							2	101
Herpes simplex		1		1								5
Herpes zoster			1	1								39
Impetigo			1	1								23
Lichen	1			1								284
Pernio			1	1								6
Pityriasis	1		1			2						131
Prurigo		1		1								39
Psoriasis		1	8	7		2						357
Ulcus	11	4	33	35		1	2				10	2,394
Unguis involutis			4	4								232
Urticaria			1	1								4
Other diseases of this class		2	4	4							2	157
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinal (venereal)	24	6	223	198	2	3			3		47	12,427
Arthritis gonorrhoica	15	31	106	61	5	71			2		13	6,845
Balanitis		1	1	2								60
Calculus			8	3								151
Chancroid	15	3	82	87	1	3			3		6	3,805
Cystitis	3	5	36	34	1	4					5	1,881
Enuresis			18	8	1	8					1	470
Epididymitis	4	3	51	45	1	2					10	1,637
Fistula urinalis			4	3					1			176
Gonorrhœa	22	42	126	156	1	18			4		16	8,625
Hæmaturia	1		2	3								88
Hydrocele	2	1	18	16	1	3					1	579
Nephritis acuta	8	2	17	14	2	8	1				2	841
Nephritis chronica	3	5	23	16	1	5	1			5	3	1,007
Nephrolithiasis		1	4	2		2			1			153
Ophthalmia gonorrhoica	1	2	15	12		8					8	648
Orchitis	10	2	63	64		1			1		9	2,884
Paraphimosis			5	5								153
Perinephritis			2	2								69
Phimosis	3	6	27	26	2						8	1,445
Prostatitis	1	3	7	6	2	1	1				1	312
Pyelitis			1				1					19
Spermatorrhœa			1	1								10
Syphilis consecutiva	57	89	337	277	13	108			8		77	23,248
Syphilis primitiva	4		32	25	1	2					8	1,656
Urethræ strictura	3	3	22	21	1	4			1		1	1,067
Urinæ retentio		1	6	3		3					1	180
Varicocele	12	3	65	67	1	2			1		9	2,608
Verruca acuminata		1	6	7								270
Other diseases of this class		3	9	6		5					1	270

Detailed statement 1904—Continued.

13. NAVAL HOSPITALS—Continued.

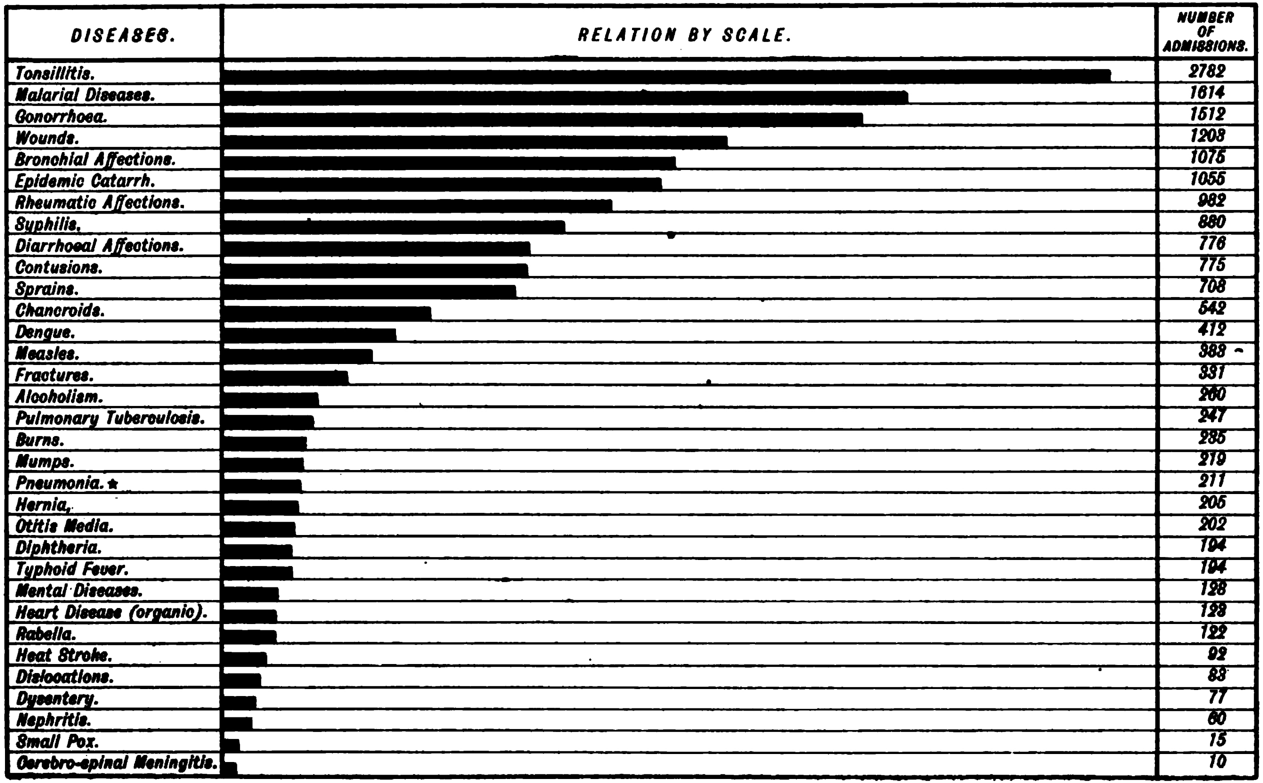
Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS XII:												
Cysts and new growths—												
Adenoma			3	2							1	193
Angeioma			1								1	13
Carcinoma	1	2				1				2		35
Cystis	2	1	7	7		1					2	338
Epithelioma			1			1						24
Fibroma	1		1	2								53
Glioma			1			1						23
Lipoma			4	4								228
Osteoma			2	1		1						24
Sarcoma			1	1								19
Other diseases of this class	1	1	3	2	1	1					1	194
CLASS XIII:												
Injuries—												
Ambustio ex calore	2		14	14						1	1	399
Asphyxia ex submersione		1								1		1
Concussio	1	2	6	5		1					8	280
Contusio	4	12	38	42		6	1		2		8	1,396
Deformitas	1	16	39	5	3	41			2		5	1,648
Fractura	15	9	98	70	2	18	2		1	2	27	7,415
Fulminis ictus			2	2								71
Hernia	14	19	165	96	13	55	6		4		24	7,812
Luxatio		1	14	9	1	8					2	411
Membranæ tympani ruptio			2								2	20
Membri clades	1			1								42
Musculi ruptio		1	3	2		2						135
Stremma	8	8	41	41		3	1		1		6	1,742
Virium defectio		1									1	5
Vulnus contusum	3		11	13		1						638
Vulnus incisum	2	1	11	9	1	2				1	1	781
Vulnus laceratum	7	2	34	31		6			1	1	4	1,609
Vulnus punctum	1	2	6	6		2					1	134
Vulnus sclopeticum	1	1	16	10	1	3	1			1	2	1,128
Other diseases of this class			1			1						4
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum			3	1		2						155
CLASS XV:												
Poisons—												
Alcoholismus	3	10	37	40		7					3	537
Venenum irritans			1	1								18
Venenum neuroticum		3	10	2		3			1	8	4	195
Vulnus venenatum	2	1	8	8							3	315
CLASS XVI:												
Feigned diseases—												
Malingering			1			1						7
Total	598	842	5,613	4,677	322	1,055	60	45	77	88	729	248,129

14. *Report of vaccination in the Navy and Marine Corps for the year 1904.*[a]

Classification.	Successful.	Unsuccessful.	Percentage of success.
Class 1.—No evidence of vaccination	597	1,287	31.69
Class 2.—Evidence of previous vaccination	2,638	7,205	26.80
Class 3.—Evidence of attack of smallpox	4	41	8.89
Total	3,239	8,533	27.51

[a] Includes only cases in which results were determined; many were undetermined by reason of transfer.

TABLE XV.—*Prevalence of special diseases and injuries in the Navy and Marine Corps during the year 1904.*



DISEASES.	RELATION BY SCALE.	NUMBER OF ADMISSIONS.
Tonsillitis.		2782
Malarial Diseases.		1614
Gonorrhoea.		1512
Wounds.		1208
Bronchial Affections.		1075
Epidemic Catarrh.		1055
Rheumatic Affections.		982
Syphilis.		880
Diarrhoeal Affections.		776
Contusions.		775
Sprains.		708
Chancroids.		542
Dengue.		412
Measles.		383
Fractures.		331
Alcoholism.		260
Pulmonary Tuberculosis.		247
Burns.		235
Mumps.		219
Pneumonia.★		211
Hernia.		205
Otitis Media.		202
Diphtheria.		194
Typhoid Fever.		194
Mental Diseases.		128
Heart Disease (organic).		128
Rabella.		122
Heat Stroke.		92
Dislocations.		83
Dysentery.		77
Nephritis.		60
Small Pox.		15
Cerebro-spinal Meningitis.		10

★ *Broncho-pneumonitis, with 55 admissions, included under this title.*

16. *Mortuary record of the Navy and Marine Corps for the year 1904.*

Cause of death.	Number of deaths.					
	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.	Average age.
Alcoholismus		2	1		3	36.41
Ambustio ex calore	1		32		33	25.01
Aneurysma	3				3	25.92
Apoplexia	1		1		2	52.50
Appendicitis	3	1		2	6	38.32
Asphyxia			7		7	27.46
Asphyxia ex submersione	1	11	23		35	27.90
Bronchopneumonitis	3	1			4	31.33
Carcinoma	2				2	34.88
Cholecystitis	1				1	41.42
Concussio		2			2	26.13
Contusio			1		1	22.42
Cordis dilatatio		1	1		2	44.75
Cordis valvularum morbus	1		2	1	4	46.54
Diabetes mellitus	1	1			2	41.67
Diphtheria	1				1	22.17
Dysenteria acuta				1	1	23.83
Embolismus	2				2	40.00
Erysipelas	1				1	23.08
Febris cerebro-spinalis	4	1			5	20.58
Febris enterica	13	1	5	2	21	26.14
Febris flava	1				1	21.50
Febris pneumonica	2	3	5		10	30.02
Fractura	2	3	6	1	12	31.22
Hepatitis suppurativa	2	2			4	39.42
Laryngitis acuta	1				1	34.58
Lymphadenoma	1				1	24.33
Luxatio			1		1	22.25
Meningitis	2		1		3	22.53
Myelitis	1		1		2	27.71
Nephritis chronica	5		1	1	7	38.34
Oedema pulmonalis			1		1	36.00
Peritonitis	1		1		2	21.33
Rheumatismus articularis acutus	1				1	18.08
Scarlatina	1				1	18.75
Septicaemia	2		1		3	22.61
Syncope			1		1	23.83
Tuberculosis miliaris acuta	3				3	25.39
Tuberculosis pneumonica acuta	2		1		3	29.67
Tuberculosis pneumonica chronica	17		1	9	27	27.68
Variola			2		2	19.38
Venenum irritans		2	1		3	45.94
Venenum neuroticum	3		3		6	26.88
Vulnus incisum	1		2		3	28.81
Vulnus laceratum	1				1	26.75
Vulnus punctum		1			1	29.33
Vulnus sclopeticum	1	2	5		8	31.84
Total	88	34	107	17	246	29.33

TABLE XVII.—*Deaths in the Navy and Marine Corps during the year 1904.*

[Average strength, 40,555; number of deaths, 246; ratio per 1,000 of strength, 6.06.]

CAUSES OF DEATH.	RELATION BY SCALE.	NUMBER OF DEATHS.
Drowning.		35
Burns.		33
Pulmonary Tuberculosis.		30
Wounds.		22
Typhoid Fever.		21
Fracture.		12
Pneumonia.		10
Nephritis.		7
Strangulation.		7
Appendicitis.		6
Cerebro-spinal Meningitis.		5
Abscess (liver).		4
Broncho-pneumonia.		4
Valvular Heart Disease.		4
Alcoholism.		3
Aneurism.		3
Meningitis.		3
Miliary Tuberculosis.		3
Septicæmia.		3
Apoplexy.		2
Carcinoma.		2
Concussion.		2
Diabetes.		2
Dilation of Heart.		2
Embolism.		2
Myelitis.		2
Peritonitis.		2
Small Pox.		2
Cholecystitis.		1
Contusion.		1
Diphtheria.		1
Dislocation.		1
Dysentery.		1
Erysipelas.		1
Laryngitis Acuta.		1
Lymphadenoma.		1
Pulmonary Oedema.		1
Rheumatism Acuta.		1
Scarlet Fever.		1
Syncope.		1
Yellow Fever.		1

REPORTS ON NAVY-YARDS, SHORE STATIONS, AND RECEIVING SHIPS.

REPORT ON THE NAVY-YARD, PORTSMOUTH, N. H.

By W. G. FARWELL, *Medical Director, U. S. Navy.*

The general sanitary condition of the yard was supposed to be very good until August 31, when an epidemic of typhoid fever suddenly broke out at the marine barracks. The first case was that of a private marine who had just been transferred from League Island, Pa. After other cases appeared the water of the well at the barracks was examined and pronounced unfit for use owing to the presence of colon bacilli. Upon investigation it was decided that the well was polluted by leakage from the sewer of the barracks, and the water was no longer used.

All the drinking water supply of the yard, including wells, ponds, a large cistern, and the public supply, was examined, the work being done by the State laboratory of hygiene, at Concord, N. H. All were condemned as containing colon bacilli except one well, the cistern, and the public supply (Folly Pond).

As soon as the incubation period had passed, after ceasing to use the well water at the barracks, there were only two additional cases. There were 22 cases in all, with 5 deaths, a high rate of mortality.

Since then the Bureau has installed a complete laboratory at the hospital, where chemical and bacteriological examinations can be made.

This yard is assuming greater importance every year. The new dry dock has just been completed, and will be in use very soon. New buildings are constantly being erected in the departments of construction and steam engineering, thus greatly increasing the facilities of the yard in these directions. A new hospital is urgently required.

The water supply of the yard is obtained from cisterns and from the mainland (Folly Pond). This latter water is potable, but at times has an unpleasant taste and odor, owing to the watershed being covered with decaying logs and leaves, and marshes at the head of the pond. If the purchase of this water supply is contemplated by the Department, the ponds should be emptied and the bottoms cleaned of the decaying vegetable matter that has been accumulating for years.

The condition and location of the men's bathroom and water-closets at the marine barracks are as objectionable as ever. The water-closet at the main gate of the yard is badly located, and change in its location is recommended.

REPORT ON THE UNITED STATES NAVY-YARD, MARE ISLAND, CAL.

By J. R. WAGGENER, *Medical Director, U. S. Navy.*

The sanitary condition of the yard during the year has been excellent. No changes of importance have occurred since last report.

Besides officers and their families there are 137 civil employees residing in the yard. This adds largely to the work of the dispensary and also increases the expenditure of medicines and surgical dressings. Civilians employed by contractors are frequent applicants for medical treatment and first aid at the dispensary.

Eight hundred and twenty-one accidents, 17 serious in character, were treated at the yard dispensary. Death followed in two cases, one from crushing of the leg, and one from fracture of the skull.

The following alterations and improvements were made in the medicine and surgery storehouse and dispensary building: The floor and walls of the accident room and the floor of the lavatory were finished with antiseptic tiling. The top and sides of the packing room, upper and lower storeroom, and liquor room were ceiled. Additional shelves were placed in the liquor room, and a set of shelves and drawers in the packing room. A new dispensary sink was installed. Sixteen windows were supplied with wire screens.

The storage capacity of the building as now arranged is inadequate. For want of room the outfit for the hospital ship *Relief* is now stored in a building of the equipment department.

The marine guard was largely strengthened during the fourth quarter and the total number of sick days was correspondingly increased, being 819 as compared with 536 for the fourth quarter 1903.

There are 300 officers and men at the post, and 90 prisoners. The barracks and prison are both overcrowded and about one-half the guard is living in tents.

REPORT ON THE UNITED STATES NAVY-YARD, BOSTON, MASS.

By E. Z. Derr, *Medical Inspector, U. S. Navy.*

During the past year the average complement of officers, marines, and prisoners at this yard was 430.

There were no deaths during the year. No epidemic of a serious nature has occurred in the barracks. There were 2 cases of mumps during the first quarter, which were transferred to hospital, and no more cases developed.

During the months of January, February, and March catarrhus epidemicus prevailed to some extent, and 21 cases were admitted to the list. Two cases of measles occurred in the families of officers.

The marine recruiting rendezvous in Boston was closed in the month of October, and since then recruits have been examined at the navy-yard.

The new dispensary, now approaching completion, is a substantial brick structure of pleasing architectural design, centrally located, and convenient to the marine barracks. It consists of a two-story central building, with wings, attic, and basement. On the left of the entrance hall are the offices of the senior medical officer and his assistant, and the examining room. On the right are the office of the pharmacist, waiting and dispensing rooms, and a ward for emergency cases. At the end of the hall, and communicating with it by folding doors, is the operating room, 13 feet 6 inches by 17 feet. The operating room has a semicircular extension, and is well lighted by 5 windows and a skylight. It is wainscoted with white enameled tiles, and the floor is a terrazzo of blue marble. There are two water-closets on the lower floor—one in the examining room, the other in the ward.

The second story is devoted to the quarters of the pharmacist, and comprises four living rooms, a kitchen, storeroom, water-closet, and a bathroom.

Much remains to be done before the building is ready for occupancy. Shelving, lockers, and drawers are to be put in place, walls painted, electric lights installed, and the basement cemented. When completed the building will fill in a satisfactory manner the needs of the Medical Department.

The marine barracks is an old building and requires renovating and remodeling. There is no method of ventilation except by means of doors and windows, and when overcrowded, as the building generally is, this method is inadequate and faulty in a cold climate. Unless the barracks are enlarged the number of marines stationed here should be limited to 150. At the present time there are 264, and the number has exceeded 300. Such a degree of overcrowding is excessive, and must react upon the health of the men. All the water-closets are located on the ground floor, and a man taken sick in the night is obliged to go a long distance for relief. It is therefore recommended that one water-closet be placed on each floor for use in such emergencies.

The prison is kept in good condition, and there has been but little sickness among its inmates.

There has been a marked improvement in the general appearance of the yard in the past year. Streets have been paved, new sidewalks laid, and a plot of ground opposite the commandant's house has been converted into a park.

The new dry dock is approaching completion. Building No. 23 is to be remodeled and furnished with water-closets, baths, and stationary washtubs for the use of the crews of ships.

The average number of workmen employed in the yard, exclusive of contract laborers, amounted to about 2,100. First aid was rendered in 302 cases Some were of a serious character, and two men died from injuries received.

REPORT ON THE U. S. NAVY-YARD, NEW YORK, N. Y.

By E. H. GREEN, *Medical Inspector, U. S. Navy.*

The three-storied brick barracks in which the marines are quartered is well lighted with electricity and well heated by steam. The sanitary condition of the building is good. The lavatories are well kept and provided with modern sanitary plumbing. The bathing facilities are ample. The accommodations are ample for 400 men; beyond that number the dormitories are crowded. At one time, for a short period, there were 600 men in the garrison.

The average strength of the post for the year was 372. There were 1,703 marines stationed here during the year. The personnel of the post changed on an average every seventy days.

The health of the post has been very good. There were no deaths, and no infectious diseases, with the exception of one case of measles and one of mumps.

A post commissary store has been established, which adds a great deal to the comfort of the men. If it were enlarged and included the sale of beer and light wines, possibly the sick list would not have shown 10 admissions for alcoholism.

A room should be set apart as a reading and writing room. The so-called library is principally occupied by billiard tables, and those who want to read or write find it difficult to do so when the billiard tables are in operation.

The water-closet in the guard room should be enlarged. It is too small to admit more than one man at a time comfortably; it is very dark and difficult to keep clean. It could be built out on the east side and made more light and commodious.

The health of the personnel and the sanitary condition of this yard has been good. The contemplated erection of an abattoir in close proximity to the navy-yard was strongly protested against on the score that it would be a menace to the health of the yard. A permit to erect the abattoir has not as yet been secured.

It is thought that by cutting away the cob dock, the waters in Whitney basin and Wallabout channel would be relieved of their sluggishness and the deposits made there would be carried away.

At the yard dispensary 2,127 cases were given medical and surgical aid. Three deaths occurred.

REPORT ON THE U. S. R. S. HANCOCK.

By N. H. DRAKE, *Medical Inspector, U. S. Navy.*

The ship has been alongside the cob dock during the entire year, and her sanitary condition and the general health of the officers and crew have been very good. With an average complement of 1,074.1 during the year, the daily average of sick has been 8.75, and the total number of sick days, 3,207.

In the class of infectious diseases there were admitted 1 case of variola, 13 cases of morbilli, and two cases of parotitis epidemica, all of which were transferred to the hospital. Among the parasitic diseases there were admitted 29 cases of scabies, of which 22 cases were sent to the hospital and the remainder treated on board the ship. In addition to the 29 cases of scabies above mentioned, there were 43 cases on board ship during the fourth quarter of the year, which were under treatment but not admitted to the sick list. Very few of these cases originated on board ship. In 8 instances the disease was found on men recently enlisted at other recruiting stations, and nearly all the others were among the men transferred here from other ships, or among the deserters received on board.

The recruiting work is done in an office on the cob dock, and during the year there have been 1,475 persons examined for enlistment. Of this number 980 were accepted and 495 rejected. There were 764 examinations for first enlistment, with 393 rejections, and 711 examined for reenlistment, with 99 rejections. Among the total number rejected there were 36 for color blindness.

A dentist having the rate of hospital steward has worked in an office in the prison building on the dock, and during the year has done 1,036 fillings of various kinds. His other work consisted of 48 extractions, 59 pieces of bridge work, and 150 crowns, gold and porcelain. His services have been of very great benefit to the crew.

The sick bay, located aft on the upper berth deck, is of ample size for the needs of the ship, and receives natural light and ventilation by means of 12 air ports and an air shaft about 8 feet square, which leads up to the promenade deck and is covered by a skylight. Artificial ventilation is provided by four electric fans and air ducts leading from an electric motor, which is operated on the exhaust system. The wires for electric lighting have been removed from the old wooden casings and are now inclosed in iron pipes. The heating facilities have been improved by the introduction of two steam pipes leading nearly the entire length of the compartment just above the deck, and so far there has been no difficulty in maintaining a comfortable temperature in the room. There are 24 bunks arranged in double tiers in the compartment.

The storeroom, water-closets, and bathrooms for the use of the sick and attendants are just abaft the sick bay. The storeroom is very large and well ventilated by two air shafts, and is well lighted by both natural and artificial means. In addition to the changes in the sick bay already mentioned, a few other changes affecting the sanitary condition of the ship have been made during the year and are noted as follows:

Completion of the work of installing 13 Paragon blowers for artificial ventilation. They are operated by electricity, and so far have given satisfaction.

The space between the upper deck and the promenade deck has been inclosed with wooden bulwark below the rail, and with glass set in sliding frames between the railing and the deck above. This protects the upper deck from the inclement weather of the winter season, and gives a covered passage fore and aft on either side of the ship, from the topgallant forecastle to the poop, which, in times of emergency, would afford more swinging billets and lessen the danger of disease from overcrowding. It diminishes, however, the light and air in the officers' quarters and mess room, located on the upper deck, and in that respect is an objection from a sanitary standpoint.

All scuppers discharging from the upper deck and upper berth deck have been inclosed in metallic cases which lead below the water line.

The after urinal scuppers discharge through lead pipes, and these have been led down close under the counters of the ship to the water line. In their course they pass through the sick bay along the ship's side, and in that compartment have been covered with wood.

A steam radiator has been installed in the after bag room, which increases the temperature several degrees in that compartment.

In the after head for the men the tiling and cement is being removed and the iron deck calked. When this is finished a new layer of cement and tiling will be laid and it is hoped that this work will prevent the leakage from the head into the sick bay compartment which has existed for a long time.

REPORT ON THE U. S. NAVAL STATION, HAWAII.

By W. E. Taylor, *Medical Inspector, U. S. Navy, retired.*

The station is situated in the heart of the shipping district of Honolulu, immediately on the water front, being separated from the naval docks by the width of the street. The location is a perfect flat, the formation being coral with an artificial fill of 3 inches of soil. The drainage is slight, but the thin soil with the underlying coral formation permits of rapid seepage, so that the surface is dry even in rainy weather.

The buildings comprised in the station are: Commandant's office, a two-story building; pay office, one story; three coal sheds and three one-story cottages; these last being used as watchman's cottage, dispensary, and quarters of the barge crew. All buildings are in good repair and excellent sanitary condition. During the year the cottage now used as a dispensary has been equipped for that purpose. It consists of six rooms, viz: Office, a small ward dispensary, which is also used as a dressing room, a storeroom, stewards' quarters, and bathroom, the latter equipped with closet and bath tub. The doors and windows were screened; the floors covered with linoleum; and shelving and drawers installed in the dispensary and storeroom, making altogether an airy and attractive modern dispensary. In view of the expenditures by the Bureau of Medicine and Surgery in equipping this building, it is recommended that it be turned over to that Bureau.

The entire water supply of the station is from an artesian well on the reservation, with a depth of 1,500 feet and a head of 11 pounds, having a capacity of about 1,000,000 gallons per day. Analysis shows total solids, 350; chlorides, 58; and calcium and magnesium salts 63.62 per million. There is every reason to believe that contamination of the supply is impossible.

All baths and closets are connected with the city sewerage system, except those in the cottage used as quarters for the barge crew. It has been necessary to limit the use of this closet on account of the tidal action in the cesspool into which it drains.

The detachment of marines is quartered in an empty coal shed, partial partitions having been erected across one end to form sleeping quarters. The building was, of course, never intended for habitation and is wholly unsuited for the purpose. It is open for 10 feet from the top, and the boarding at the sides has large cracks, making it drafty and wet in bad weather. Its proximity to the other coal sheds keeps it continually dirty, and when coal is being moved the condition is scarcely endurable—food, clothing, and the persons of the men being continually covered with a layer of coal dust.

The messes of the U. S. S. *Iroquois* and the marine detachment are all well managed, the food well cooked and of good quality; the meats and vegetables are all inspected.

U. S. S. IROQUOIS.

The station ship has recently been thoroughly cleaned throughout, bilges and entire interior repainted. The fan blowers have been installed on the berth deck for use at sea when the air ports are closed. It is impossible to use these blowers while at the dock, on account of the change in the electric power from a direct to an alternating current, yet with the air ports open, after being occupied all night by the entire complement of men, the air of the berth deck showed only 8.3 parts of CO_2 per 10,000. During the year trips have been made to Midway Island and to the islands of the Hawaiian group, during which the ship proved thoroughly seaworthy, though wet.

During the month of August the crew of the *Iroquois* and the detachment of marines were encamped 13 miles northwest of Pearl City for target practice. The camp was well located and kept in excellent sanitary condition. A few cases of diarrhea occurred during the first week, probably due to change of diet, etc., but these rapidly disappeared.

During the year no infectious diseases have appeared in the command, except one case of tuberculosis pulmonalis and a few cases of an irregular type of febris denguis. The percentage of venereal disease, however, has been extremely high, syphilis, chancroids, and gonorrhea causing about 90 per cent of admissions to the sick list.

The general health of the city of Honolulu is good. Five cases of plague have been reported since June. Enteric fever is quite prevalent. Leprosy exists among the natives and Chinese. Plague-infected rats have been found upon the docks used by the merchant shipping, but none on the naval docks.

A ward of two beds is maintained in the dispensary, where cases are kept for a few days, but on account of the inconvenience of diet, nursing, etc., cases covering a long period are sent to the Queen's Hospital, Honolulu, which is fairly modern and well equipped.

REPORT ON THE U. S. R. S. WABASH.

By JAMES E. GARDNER, *Surgeon, U. S. Navy.*

The general health of the personnel of the ship for the year just ended has been good.

There have been no cases of special interest, with the exception of two cases of diphtheria which were found in the brig. The diagnosis of diphtheria was confirmed by cultures developed by the medical officers at the United States naval hospital, Chelsea, and by the bacteriologist of the board of health of the city of Boston.

After the appearance of these cases a most careful examination was made of each prisoner daily thereafter, and on the slightest suspicion the man was at once transferred to the naval hospital at Chelsea. The brig was emptied of prisoners, carefully fumigated with formaldehyde, and washed with a solution of mercuric chloride, and the bedding used by the first two cases burned. Successive cases were followed by repeated disinfection, the bedding being disinfected by steam. As soon as a case was found from the deck force which gave a positive culture, the commanding officer was informed and measures recommended to stop the reception of new recruits and the transfer of men to other ships. In all, 10 men were reported from the hospital as showing positive cultures, the last having been transferred on November 15. All of these cases were of a mild type and all recovered. The disease is believed to have been brought on board by stragglers who were infected in Boston, the disease prevailing quite extensively in the city at that time.

A new wardroom and warrant officers' galley has been installed next to the cabin galley amidships and forward of the mainmast, doing away with much of the heat in the forward part of the gun deck, where previously both these galleys were situated, and the carpenter's shop has been removed from the spar deck to the forecastle of the gun deck abaft the manger to make room for the wash room completed this year. The wash room has 24 white enameled washbowls, 9 shower baths, and 5 bath tubs, with hot and cold water connections. There are also 24 tubs for washing clothes. A drying room is contemplated, and plans for the same have been drawn and await approval by the Department.

No changes have been made in the general brig on the berth deck, but additional cells have been constructed in the forward hold, 12 in all, which remedy the previous overcrowding of the general brig to a great extent. These cells are supplied with fresh air through a ventilator connected with each cell.

The danger from fire by defective wiring has been reduced to a minimum by encasing all electric wires in pipes.

The roof has been retinned, which does away with much of the leakage during rainy weather.

The decks have all been shellacked, which contributes much toward the cleanliness and comfort of the ship and prevents the dampness attending the washing down of decks not protected by shellac.

In addition to this work on board, the unsightly dumping ground in front of the ship has been cleaned, and will give a place for fresh air and exercise for the men.

The work of the hospital steward detailed as a dentist has been very valuable, and 990 teeth were restored by filling, etc., 502 diseased teeth were treated, and 92 extracted.

REPORT ON THE UNITED STATES NAVY-YARD, NORFOLK, VA.

By G. P. Lumsden, *Surgeon, U. S. Navy.*

The health at this yard has been excellent during the year. Thirteen cases of measles and 1 of parotitis developed during the first quarter and 2 cases of typhoid fever, 1 in the third and 1 in the fourth quarter.

Attention is directed to the almost entire immunity of this yard from malarial diseases during the year. There were admitted only 2 cases, 1 of intermittent and 1 of remittent fever.

Besides the large number of minor accidents which have occurred during the year among the civil employees of the yard, 108 cases of injury were considered of sufficient importance to be placed on record. Two deaths occurred in the yard among the employees, 1 from pulmonary hemorrhage and 1 from heart disease. The largest number of men employed during the year was 2,827.

Cistern water is used for drinking purposes throughout the yard. It has to be brought to the dispensary in a cart, and there should be a tank for cistern water in the building, in order to give a constant supply.

A water-closet for the exclusive use of the officers and crews of vessels in dry dock will soon be commenced. It will contain 5 closets, 2 urinals, 2 shower baths, and 2 basins for officers, and 40 stools, 4 trough urinals, and 6 shower baths for enlisted men, and will be placed between the two dry docks which are in use.

A suitable wash room is much needed for the comfort of the crews of ships in dry dock. The only one at present is a small temporary frame structure about 16 by 30 feet, which is entirely inadequate. It is recommended that there be constructed for the washing of the persons and clothing of the crews of ships in dry dock a brick structure about 30 by 60 feet, containing on one side about 20 washtubs, boards, and steam-drying racks for washing clothing, and on the other side not less than 20 shower baths with hot and cold water. The estimated cost of this building is $4,000. It should be placed between the two dry docks, just west of the proposed water-closet building.

The fitting-out wet basin for ships has recently been completed and occupied. A temporary latrine has been erected on each side of the basin on the water front for the use of the crews of ships in the wet basin.

It is urgently recommended that these latrines be replaced by two permanent brick structures, erected one on either side of the basin, about 22 by 30 feet in dimensions and containing 12 stools and 2 trough urinals each. The estimate submitted for these improvements is $5,500.

REPORT ON THE UNITED STATES NAVAL TRAINING STATION, SAN FRANCISCO, CAL.

By L. W. CURTIS, *Surgeon, U. S. Navy.*

As compared with the previous year the general health of the station shows some improvement. There has been no general epidemic invasion, the number of cases of infectious diseases not going beyond the limits noted, as follows, viz: Rubella, 2; febris cerebro-spinalis, 2; morbilli, 31; parotitis epidemica, 76; tonsillitis, 132.

During the months of November and December a large number of cases of tonsillitis developed, 60 in all. Some of these were marked by glandular enlargement and membraneous deposits on tonsils, but examination of serum cultures disclosed in no case the presence of Klebs-Loeffler bacilli. All of these cases were promptly isolated and thorough disinfection employed. It seems probable that the prevalence of this disease during the colder months of the year is in a measure due to the practice of dressing the recruits in white. They come to the station wearing much heavier clothing. The white working clothes are insufficient protection in this climate during the winter months. It is to be assumed that climatic conditions have a bearing on the development of this disease, and the influence of this raw climate is best met by warm clothing.

The present regulation underclothes after a few washings lose very largely their heat-conserving quality, and, although the jersey is very generally worn in addition under white, the dress is inadequate and is in a measure responsible for the throat inflammation and cataarhal affections which prevail. Blue flannel, which was formerly the regulation underwear of the Navy, should be restored.

The hospital accommodations of the station are insufficient in capacity, very defective in character, and faulty in location. Improved facility in one respect has been effected during the year in the construction of an operating room now nearly completed. This, when completed, will constitute a creditable feature of the medical establishment.

A limit in the supply of fresh water is a matter bearing adversely on the health of the station. This necessitates scrubbing bedding and clothing in salt water, the place utilized for the purpose being a shallow cove where the water is charged with muddy sediment and is contaminated by sewage from the ship, etc.

The barracks possess few commendable features. The structure is ornate, but it rests on foundations raised scarcely a foot above the soil, which is saturated with water during the rainy season. This defect has been in a measure remedied by excavation and removal of earth under a considerable part of the building. The whole establishment is under one roof, a plan perhaps necessitated by limited space, but none the less a defective plan in barrack construction. The drill hall and dormitory are one, and, consequently, not best adapted for either purpose. In this climate, where the temperature rarely falls below

45° F., and is generally above 50° F., an open arcade would best serve the purpose of a drill hall. Sanitary consideration should certainly predominate in dormitory construction; ventilation, heat, and light, and all the elements that go to make a healthy habitation should be of the first consideration. Under the conditions here existing the drill hall collects dirt from muddy feet, the building being margined by muddy soil in wet weather, and the necessary sweeping during the day and evening charges the atmosphere with dust, which is often germ-laden, and so spreads disease.

Barracks should be surrounded by a wide margin of asphalt or stone pavement, which would obviate to some extent this cause of morbidity.

REPORT ON THE RECEIVING SHIPS FRANKLIN AND RICHMOND.

By A. R. WENTWORTH, *Surgeon, U. S. Navy.*

This report includes consideration of the conditions existing on the receiving ships *Franklin* and *Richmond*, as well as at the St. Helena station and at the torpedo station, all of which come under the care and supervision of the medical officer of the *Franklin*.

During the year there was an average of from 1,200 to 2,000 men on the payrolls of this ship and about 300 men attached to the torpedo boats and training yachts.

There has been little or no change in the general sanitary conditions of the above-named places during the year. Objectionable features, to which attention was called in the annual report of 1903, as well as special reports during the year, still remain.

The sanitary condition of the *Franklin* and *Richmond* has been very satisfactory. On the berth deck of the *Franklin* a small room 11 by 12 feet, so constructed that it can be thoroughly disinfected after occupancy, is used for the detention of patients suspected of having a contagious disease. These patients are kept under observation until a positive diagnosis can be made. This safeguard has been a source of comfort and a protection to the general health of both the ship and station, as we have by this means kept cases of measles, scarlet fever, etc., down to a limited number and prevented exposure of many.

The solitary case of scarlet fever developed soon after the return of a recruit from liberty. It was promptly isolated and the spread of the disease prevented.

The excessive number of throat cases, mostly tonsillitis (follicular), has caused much worry and anxiety owing to the experience of last year with an epidemic of diphtheria.

In a special report in October, 1904, attention was called to the sanitary changes that should be made at the earliest possible moment. These changes are necessary, both for the prevention of disease and for the comfort and welfare of persons attached to the station.

The first and most important item is that relating to the immediate construction of a proper water-closet for the use of the recruits and others. The one now used is a temporary, plain wooden shed, with open seats, and the dejecta fall into the water, or at low tide upon the beach within 60 feet of the kitchen and mess hall. In summer, when the wind is favorable, there is a most disagreeable odor from this source; flies swarm in and about the buildings, and contaminated paper is at times blown about the buildings and grounds, thus rendering the spread of typhoid fever, dysentery, and other diseases possible.

In November, 1904, a board was appointed by the commandant of the station to recommend sanitary changes. It was advised that a modern water-closet building be erected, containing 50 automatic siphon jet closets and two 20-foot slate urinals; the building to be located at a proper distance from the mess hall, to be of brick, with slate or tin roof, with a graded cement floor, and to have a discharge pipe extending beyond the bow of the *Richmond* into deep water. There are no currents in the present locality to carry the excreta into the river stream.

The kitchen and food, as well as the men at meals in the mess hall, should be protected from disease through contamination by flies and other insects by properly constructed wire screens to windows and wire-screened vestibules to the doors. The three buildings used as barracks, Nos. 1, 2, and 3, built for temporary use, are wholly deficient in sanitary arrangements. Each of these buildings accommodates about 300 or 400 men. They are only a few inches above the soil, which is wet and contaminated from the sweepings and leakage through the single floors. An improvement is now being made by laying a double floor in the buildings, both on the first and second floors. This will only partly remedy the defect. Each of these buildings should be raised 3 feet, to admit light and air underneath the lower floor.

The night urinals should be removed from the living quarters and placed in a separate building to be added to each barrack. This building should be connected with each floor by a passage provided with a door, which should be locked during the day and open only during sleeping hours. The ground under each building should be rendered as dry as possible by a cement floor, and properly constructed drains should be built to carry the water off; also, covered passageways should connect the buildings and mess hall in order to protect men going to and coming from their meals in bad weather.

In August of this year, when several cases of enteric fever developed at this station, it was recommended that a distilling plant be installed to provide suitable drinking water, but this recommendation has not been acted upon.

Summary of work for the year: Number of recruits and other men received on board, 5,821; number of men examined for enlistment, 575; number accepted, 306; number of admissions and readmissions to the sick list, 1,629; number of patients sent to the hospital, 345; number of men discharged by medical survey, 88; total sick days, 5,324.

The following gives the number of cases of infectious and contagious diseases admitted: Tonsillitis, 155; morbilli, 125; catarrhus epidemicus, 121; febris pneumonica, 11; febris enterica, 11; pleuritis acuta, 5; febris intermittens, 21; febris remittens, 3; dysenteria acuta, 2; scabies, 124; rheumatismus articularis acutus, 21; rheumatismus articularis chronicus, 7; tuberculosis pneumonica acuta, 3; tuberculosis pneumonica chronica, 2; scarlatina, 1; vaccinia, 1; erysipelas, 1.

The work in the dental office of this station has been highly satisfactory, with a total of 1,389 cases treated and 530 extractions of teeth. The necessity undoubtedly exists for a well-equipped and established dental corps.

TORPEDO STATION.

Attention is directed to the messing accommodations for the crews of the torpedo boats. These men (some 300 or 400) at present take their meals in a hall in which the shower baths are placed and which is directly connected with the water-closets. The floors are always wet, and the cubic air space per man is only 52 feet and the floor area 4 feet. The building is totally unfit for the purpose for which it is used and is a menace to the health of the men of this section of the station.

It should be abandoned and a proper mess hall and kitchen, suitable in size and sanitary conditions, should be erected at some well-selected and accessible site.

REPORT ON THE UNITED STATES NAVAL STATION, SAN JUAN, P. R.

By George Pickrell, *Surgeon, U. S. Navy.*

On the establishment of the naval hospital at Puerta de Tierra, in January, 1904, the crowded condition of the sick quarters at the navy-yard was materially relieved, and the accommodation at the yard dispensary has been more than sufficient for such transient cases as were not serious enough for transfer to a hospital. As an emergency ward and as a place of shelter for patients from the ships, who were awaiting the ambulance from the hospital, the yard sick quarters has proved very useful.

During the diphtheria epidemic which occurred among the crew of the *Monongahela* last spring, about 300 boys and men from that vessel were encamped in the navy-yard while the vessel was being thoroughly fumigated and disinfected. By systematic bacteriological work on the part of the medical officer of the ship, segregation of infected cases was effected. All cases shown by microscopic examination to be decidedly positive were at once taken to a quarantine camp established on the hospital grounds at Puerta de Tierra. Suspected cases were placed in a separate camp in the yard, cut off from all contact with the rest, and subjected to more frequent examination. Even those in the general camp who showed no symptoms of the disease were restricted to a limited portion of the yard. In this way the contagion was checked and confined entirely to the crew of the *Monongahela*. Fifty-six cases in all were transferred to the hospital.

All the clothing and hammocks, mattresses, etc., of the crew were thoroughly disinfected before their return to the *Monongahela*, and in this work we were much indebted to the courtesy and good will of the medical officer in command of the Public Health and Marine-Hospital Service at San Juan, in allowing the use of the excellent fumigating and disinfecting plant at the quarantine station.

The general health of the station during the past year has been uniformly good. Beyond the usual large percentage of venereal disease, the only illness of any moment has been a mild form of dengue; and even this was largely confined to newcomers, who had not been previously acclimatized.

Extensive improvements have been made in the navy-yard during 1904. The building of cement coal docks has done away with much low, swampy ground, and the greater part of the vacant ground remaining has been leveled and sodded. The water-supply pipes and the sewerage systems are being constantly overhauled with considerable benefit to the drainage of the yard, collection of surface water being almost entirely done away with. The old latrine used by the native laborers has been torn down and a new one on modern lines built in a more remote spot. New shower baths have been put in the quarters of the marines. The steady employment of a skilled gardener is doing much to beautify, with lawns and flowers, those parts of the yard not occupied by coal docks, macadamized roads, cement walks, etc.

One great drawback is the absence of a proper marine barracks. The present sleeping quarters are inadequate and recourse is had to tents to accommodate the overflow.

REPORT ON THE UNITED STATES NAVY-YARD, LEAGUE ISLAND, PA.

By MANLEY F. GATES, *Surgeon, U. S. Navy.*

The conditions which exist in and about the navy-yard are somewhat exceptional, owing to the rapid development which is in progress and the unfinished or transitional state of the yard as a whole. Many pools of water which now exist will disappear as the low areas are filled with earth removed from that part of the Back Channel west of Broad street, which is being dredged to form a basin for ships in reserve. Other pools about the new concrete dry dock will be filled as its construction advances, when grading and drainage operations can then be taken up in that part of the yard.

The most important insanitary feature existing about the yard at the present time is that part of the Back Channel to the east of the Broad street causeway. This is a large area, mostly mud flat and marsh, and for the most part occupied by a dense growth of reeds covering masses of driftwood and decaying vegetation. Action concerning this area has been repeatedly recommended, and until some disposition of it shall be determined upon, and its various parts be either filled to a point above high tide or dredged to below tide level, it will continue to be a source of foul odors at low tide, and a favorable breeding place for swarms of mosquitoes.

During the past year good progress has been made in the filling in of the western end of the island. Here exist swamps and pools the drainage of which is impracticable until the filling in is completed. Efforts were made by the use of oil to restrict the mosquito output of this part of the yard, but the results were not entirely satisfactory owing to the great quantity of bark, logs, and growing vegetation in the pools.

Considerable filling in was done also on the north side of the Back Channel to the west of Broad street, about the residence known as "house A." Some time prior to the commencement of work at this point the use of the house was discontinued on sanitary grounds. The work on the Government property immediately about the house has been completed, and rapid progress has been made in the filling in by the city of the near-by area of the future League Island Park.

During the year several buildings furnishing water-closet facilities for workmen in the various parts of the yard have been completed. This has permitted the destruction of the highly objectionable wooden sheds formerly used, and the new buildings are very satisfactory.

The large amount of construction work being done in the yard by contract, viz, concrete dry dock, two residences, sea wall, laying up slips from the Back Channel, three large shop buildings, large extension of general storehouse, new power houses, etc., has added materially to the number of accident cases requiring treatment.

Of infectious diseases there were 17 cases of catarrhus epidemicus, 14 cases of malarial disease, and from 1 to 8 each of rheumatismus, febris pneumonica, diphtheria, morbilli, rubella, denguis, febris enterica, and tuberculosis. No disease became epidemic. The health of the civilian population of the yard has been very good.

There has been no case of malarial fever in which infection is known to have occured at this station, and nearly all cases that appeared gave a clear history of previous attacks elsewhere, for the most part in Panama and the Philippines. In this connection I have been able to learn of but one *Anopheles* found here among a very extensive mosquito colony, prior to August, 1904, when the *Anopheles maculipennis* appeared—at first in small numbers, later in great abundance—and persisted until the advent of cold weather. Doubtless many of these will reproduce next year, and as infected men are being frequently received from Panama and elsewhere there is a fair probability of a more extensive development of intermittent fever next summer. Extensive search failed to reveal the breeding pools of the *Anopheles*, but they are probably located among the reeds of the Back Channel. Mosquito larvæ were found in many pools, barrels, tanks, watering troughs, and large numbers in inlets to street drains, and were carefully examined, both as larvæ and after undergoing transformation, but no immature *Anopheles* was found. By the use of oil, emptying of receptacles, and some filling and draining by hand of small pools, efforts were, however, made to destroy all larvæ and to prevent further reproduction. The opinion was expressed by a number of persons, resident for some years on the island, that mosquitoes were less numerous than in former years. At the marine barracks the placing of screens at the doors and windows, done at my urgent recommendation, added to the comfort of the occupants, and in all probability materially reduced the sick list.

The water supply of the yard suffices for present daily needs, but a new pumping station for the Delaware River system is under construction and contracts have been let for a compressed-air installation for the artesian system, which should, when completed, largely increase the yield of the wells. If a sufficient artesian supply can be maintained some extension of this system should be made and in a number of places it should be substituted for Delaware water. The marine barracks is particularly deficient in its supply of potable water, there being but two artesian taps in the building, located respectively in the basement and the kitchen. The faucets in wash rooms have all been marked, "Danger! unfit for drinking," on copper tags, but it is probable that the rule is not universally obeyed.

The need for a new dispensary building has been frequently represented, the present building having reached a point beyond which minor repairs could no longer be delayed. Falling plaster, scaling and discolored paint, floors wet and linoleum rotten from steam leaks underneath, and the ladder to the attic dangerous from wear, demanded attention. The Department of Yards and Docks caused the building to be examined and repairs made, and with the renewal of certain furnishings, authorized by the Bureau of Medicine and Surgery, the building is again presentable. When a new dispensary is constructed the present building could be moved to a convenient site and remodeled to serve as quarters for the hospital steward attached to the yard.

A washhouse is needed for the use of men attached to ships in dry dock. In a report to the commandant it was recommended that a building be so planned and located as to serve the purposes of bathing, washing and drying of clothes, sterilizing clothing and bedding, and reexamination of large bodies of men received from or being transferred to ships. A tentative plan was also offered. The matter was referred to the civil engineer who slightly modified the plan and submitted drawings, etc., to the Department. Such a building would, it is believed, be found most serviceable.

At present it is extremely difficult for the crews of ships in dock, particularly during cold weather, to maintain proper cleanliness of person and clothing. The examining room and sterilizer features would prove of great service to medical officers in the rapid examination, or rather inspection, of newly received drafts of men, and would facilitate the elimination of those suffering from certain infections or from the no less annoying parasitic diseases, particularly scabies and pediculosis, now so prevalent. The advantage of adequate bathing facilities, convenient to the examining room, is patent to all who are accustomed to the handling of recruits.

The location of the yard, and the work already accomplished, indicate a continuance of the development now in progress and the ultimate need for an increase of transportation facilities far beyond what would meet the present requirements.

REPORT ON THE UNITED STATES NAVAL TRAINING STATION, NARRAGANSETT BAY, RHODE ISLAND.

By G. H. Barber, *Surgeon, U. S. Navy.*

The average complement of the station during the past year has been: Officers, 46; enlisted men, 291; marines, 80; apprentices, 412. The total number at the station during the year was 1,183.

Early in June the *Constellation* was towed to the New York Navy-Yard for a general overhauling, and remained there until December. During this time the enlisted men were housed in the old barracks. It is believed that the repairs and alterations made to the station ship will improve her general sanitary condition and add materially to the comfort of the men. The general sanitary condition of the marine barracks has been good and there have been few cases of serious illness during the year.

The sanitary condition of the apprentice barracks has been excellent. In view of the numerous improvements made in the sanitary arrangements of the building occupied by the apprentices, and the adoption of an entirely new routine in the treatment of the recruits upon their arrival at the station, it will be of interest to note the results which have been attained. The following table shows a comparison of the percentages of the prevailing diseases for 1903 and 1904. It is based on the number of admissions and relates solely to the apprentices. The diseases mentioned are those that may be regarded as preventable, or at least their prevalance is profoundly influenced by good or bad sanitary surroundings.

	1904 (average complement 412).	1903 (average complement 766).		1904 (average complement 412).	1903 (average complement 766).
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
Febris pneumonica	2.7	20.7	Rubella	11.5	5.2
Bronchitis acuta	2.9	2.0	Parotitis epidemica	.0	18.6
Bronchitis chronica	2.2	.5	Scarlatina	.4	.2
Pleuritis acuta	.9	6.6	Varicella	.0	.5
Pleuritis chronica	.2	.3	Diphtheria	18.4	30.8
Catarrhus bronchialis	8.4	12.0	Otitis externa	.7	1.8
Tonsilitis	4.1	12.4	Otitis media	3.1	5.6
Morbilli	.7	4.3			

During the past year unusual efforts were made to prevent the development of diphtheria. The total number of cultures taken at the barracks was 1,839. Of these 822 were taken from recruits upon arrival at the station, and 33, or 4 per cent, of this number were found positive. Prior to May 14 it was the practice to send the laboratory cases to the hospital for isolation; later means were devised whereby equally good results were attained by isolation at the station. It is to be noted that not one of the 33 laboratory cases developed at any time clinical symptoms of the disease. Notwithstanding all the precautions taken a mild epidemic of diphtheria occurred, and in the short period during which it continued 75 admissions were recorded. Of this number 60 presented clinical symptoms of a mild type of the disease, and were transferred to the hospital. At the outbreak of the epidemic the sanitary conditions of the barracks appeared to be excellent. The only thing against which the slightest suspicion could be raised was the swimming tank. Several sanitary reports have been made citing the insanitary nature of this tank, and recommending its discontinuance for bathing purposes. To determine what influence, if any, could be assigned to it in the spread of the infection orders were issued to close it for all purposes, and three days ofter this action was taken the last clinical case developed. Cultures were taken from the entire battalion, laboratory cases sent to the hospital, and the epidemic terminated abruptly. The single case recorded in the fourth quarter developed soon after arrival here of the patient. At present the swimming tank is used only for the purpose of giving instructions to recruits in the art of swimming. Since the closing of the swimming tank for bathing purposes diseases of the external and middle ear have almost entirely disappeared.

The epidemic of measles which prevailed during a short period in the first and second quarters was a mild type of rubella. The first case was an apprentice who had passed the prescribed time in the detention barracks and had been nearly two months in the main barracks. No cases had been reported by the board of health in Newport, consequently it was impossible to trace definitely the source of infection. The first case of scarlatina developed in an apprentice the second day after his arrival, and the disease was confined to the detention barracks, only one other case developing.

The system of ventilation installed in the apprentice barracks is spoken of as the "direct indirect system." It has now been in operation for about a year, and while the conditions brought about by its use are a vast improvement over those of a year ago they are far from perfect, and the reasons are quite obvious. The term "direct indirect" refers entirely to the heating of the fresh air. The latter passes through an opening in the outer wall of the building over a steam coil into the room. This flow of fresh air is subject to extreme variations, depending upon differences in pressure between the air on the inside and that on the outside of the building, and the currents of the outside air induced by the wind.

The outflow current is dependent upon a column of air contained in a galvanized tube led through the roof and heated by a steam coil at its base. These tubes are from 10 to 15 feet in length and 2½ feet in diameter. Ducts lead from the bases of the main outlet tubes to various parts of the room. Many inspections have been made during the year to observe the working of the system, and not once has an outflow current from all the ducts been observed. The most constant variation from the normal shows a strong inflow through the ducts leading to the main outlet shafts on the weather end of the building and a weak outflow through those at the opposite end, showing that the degree of heat in the shallow column of air in the outlet shafts is not sufficient to overcome the influence of the outside air currents. There is also great variation in the steam pressure used; the shafts near the boiler will be doing quite sufficient work, while those at the opposite end of the building will show little or no change of air. During the winter months it would be possible to maintain the necessary degree of heat to cause a good outflow. In summer, when ventilation is quite as necessary, the long lead of steam pipes tends to render the sleeping quarters uncomfortably hot. In my opinion the system is not practicable for use in buildings of this nature, where perfect ventilation is of such a prime importance. The false sense of security liable to be induced by the display of the elaborate network of pipes leading to all parts of the building might lead to unfortunate results, especially as in the present instance, where it is so easy to overcrowd the dormitories.

The steam coils over which the fresh air passes have been encased in sheet iron, with a wire grating over the only outlet on top. They have been riveted and soldered to make them tight, and are gradually filling up with dust and rubbish. Through this mass the fresh air must filter before it enters the room.

The objectionable features of this system can only be obviated by the use of electric fans in the place of the steam coils, which would convert what at present is simply a method of ventilating into an effective system of ventilation. The casings for the coils used for heating the fresh air should be so constructed as to facilitate cleaning. This plan has been adopted in the ventilating system of the barracks now nearing completion at this station.

The room used for bathing and for scrubbing clothes and hammocks is situated in the basement at the north end of the apprentice barracks. This room contains 25,677 cubic feet of air space, and is ventilated only by three small windows having a southern exposure. The apprentices bathe and scrub clothes here by divisions, and with 600 apprentices in the barracks there would be 150 to a division, which allows only 170 cubic feet of air space to each of them.

It is recommended that a large caliber air shaft be run from this room to the roof above, and that a steam coil be placed in its base.

REPORT ON THE UNITED STATES NAVAL TORPEDO STATION, NEWPORT, R. I.

By N. J. Blackwood, *Surgeon, U. S. Navy.*

The health of the personnel of this station for the past year has been very good. The enlisted force on duty and under instruction at the station has averaged 236.81 per diem, distributed among the torpedo boats, submarines, and seamen gunners, and there has been an average of 10 officers, with their families. One hundred and ninety-six civilians have been employed in the shops and on the grounds, among whom many accidents have occurred.

There has been but one instance of contagious disease (a case of measles), and this notwithstanding the fact that there has been considerable scarlet fever, diphtheria, measles, and typhoid fever in the city of Newport.

The facilities of the dispensary have been much improved by the addition of a new operating table, a nebulizer for the treatment of nose and throat diseases, and a microscope, while a constant supply of hot water has been procured by the installation of a boiler in the cellar, connected with the boiler house in the machinery department of the station. A local telephone has been put in between the surgeon's house, the dispensary, and Rose Island, where the magazine is situated, and a long-distance telephone between the surgeon's house and the telephone exchange, thus enabling prompt calls to be made from all parts of the island, and permitting communication with persons in Newport who are entitled to the medical services of the surgeon at this station.

New plumbing has been placed in several of the officers' quarters, where the bathrooms and water-closets had been condemned as insanitary. The quarters of the seamen gunners and men employed on the submarines are in very good condition, having been recently much enlarged. When the present scheme is completed they will accommodate about 117 men in folding bunks and 55 in hammocks, besides five rooms for petty officers available for about 25 more men in cases of emergency.

REPORT ON THE U. S. RECEIVING SHIP LANCASTER AND AUXILIARIES.

By M. S. Guest, *Surgeon, U. S. Navy.*

The *Lancaster* was placed in commission on November 16, 1903, the men and officers having been transferred to her from the *Puritan*. As much sickness had prevailed on board the former receiving ship *Minneapolis* from overcrowding, a set of temporary barracks was built at the upper end of League Island, consisting of three two-storied frame buildings and one long one-storied building, to be used as a mess hall.

The grounds on which these dormitory barracks are built is made ground, which is soft and damp, the ground water being somewhat less than 2 feet below the surface. The floor beams of the buildings rest directly upon the ground throughout their whole length, or span a scooped-out space in the earth, which forms an additional catch-all for moisture and drainage, rendering at least the lower floors of the building unhealthful.

The arrangement of the windows is bad. To obtain sufficient ventilation, to do away with even the foul odors at night, so many windows must be kept open as to create severe drafts and permit rain or snow to enter.

In the early spring four cases of cerebro-spinal meningitis appeared and were transferred to hospital. The other men were removed from the buildings and put into tents, in which they remained all summer and fall, or until the beginning of inclement weather made some other provision for them necessary.

As the old berth deck of the *Lancaster* was badly lighted and ventilated, it was abandoned as a sleeping place for more than a few men, and the spar deck, which had been housed in, was fitted for a berthing space. This space, in addition to the gun deck, provided swings for about 450 men, which greatly relieved the congestion at the barracks, these having been limited in capacity to a factor of safety of 80 men to a floor, except the mess hall, which, being much larger than the other buildings, could accommodate 120. As this did not prove sufficient to safely accommodate the number of men frequently and suddenly quartered here, the U. S. S. *Panther* was placed in commission in November, and afforded additional berthing space for upward of 400 men. The total number which can be conveniently cared for on board the two ships and at the dormitory barracks is about 1,200.

A new system for artificial ventilation is being installed on board the *Lancaster*, which will add greatly to her comfort and efficiency as a receiving ship.

A suitable disinfecting plant for the receiving station is an absolute necessity.

REPORT ON THE UNITED STATES NAVAL STATION, ISLAND OF GUAM.

By J. F. LEYS, *Surgeon, U. S. Navy.*

During the year 1904 the general health of the naval station has been fair. The average strength of the entire command, naval and marine, for the year was 142.11. The total number of sick days was 1,741; percentage of sick, 3.34. One officer and 12 men were invalided to the United States for the following causes: Febris enterica (convalescent), 3; neurasthenia, 2; cordis valvularum morbus, 2; distomiasis, 1; catarrhus intestinalis chronicus, 1; prostatitis, 1; neuritis, 1; paraplegia, 1; bronchitis chronica, 1.

There were 6 deaths among the men from the following causes: Hepatitis suppurativa, 2; febris enterica, 1; fractura (skull), 1; fractura and luxatio (tetanus), 1; bronchitis chronica, 1.

The only diseases of an epidemic character among the personnel have been catarrhus epidemicus, 9 cases, with no deaths, and febris enterica, 5 cases, with 1 death, in which the diagnosis was confirmed by necropsy. The typhoid fever was confined to enlisted men of the Marine Corps, and must have been caused by infection in imported food, either cold-storage vegetables and fruit, or soft drinks sold in the post exchange. Not a case of the disease has been seen in the civil population for many years. The conditions here, as regards drinking-water supply and drainage, among the native population, render it practically certain that if the disease once gained a foothold it would never disappear until a new water supply was provided.

True dysentery has not been seen here among the natives, and necropsies made in cases of fever with mucous and bloody stools have revealed no dysenteric lesions, but only large numbers of lumbricoid worms with acute general inflammation of the intestinal mucosa set up by them. The last case of acute dysentery seen here was in the garrison. The man died of perforation in August, 1903. Another soldier brought a case of chronic dysentery from the Philippines, and died of it here on June 25, 1904, after a successful operation for solitary liver abscess three weeks before his death.

The U. S. naval collier *Justin* brought us, early in the year, 4 cases of beriberi among her Chinese crew. The men were removed to the sick quarters, where 3 recovered and 1 improved. A sanitary inspection of the vessel resulted in certain changes in the berthing of the men and the ventilation of the ship, after which no more cases appeared. In October a similar outbreak occurred in the U. S. naval collier *Alexander*, and 11 cases were treated in hospital before the end of the year, with 1 death. A sanitary inspection of the vessel and crew was made and was the subject of a special report to the commandant.

The naval sick quarters occupy the Maria Schroeder hospital, which is badly in need of repairs and paint. The rental now paid by the Bureau for the use of sufficient space in this building for naval sick quarters will enable the insular government, which owns it, to put it in repair. A great gain in space, ventilation, and comfort has been secured by renting sleeping quarters for six men of the hospital corps in a building adjoining the hospital, at a cost of $15 a month. These men slept formerly in a gallery around the wards, cutting off the free circulation of air it was intended to secure. The sick quarters now available contain no operating room, laboratory, mortuary, isolation room, room for a sick officer, or room that can be closed and rendered smoke-tight for fumigating purposes. Sufficient room for medical stores, for a mortuary, and for the station dentist is obtained as heretofore by renting private property. It is hoped that the insular government will before long find itself able to carry out extensions and improvements to the hospital building which will provide these much-needed features. Detail plans have been drawn for such extensions and have been approved by the governor. During the last month the department of yards and docks of the naval station has laid a branch pipe from the distilled water main to the sick quarters. The value of this improvement can be realized when it is known that all distilled water required for culinary and surgical purposes heretofore has been carried daily in buckets by laborers from a pipe a quarter of a mile distant. The station telephone system has also been extended to the sick quarters and proves a great convenience.

Among the improvements greatly needed for the hospital is the installation of sufficient tanks to conserve rain water for bathing and other purposes. The great advantage of rain water conservation for both naval station and insular buildings has been urged upon the local authorities. There are many public buildings of large size with iron roofs. Rain water from an iron roof is as good as distilled water for nearly all purposes and the average annual rainfall here is not far from 100 inches, well distributed throughout the year. Nearly all of it now goes to waste for the want of tanks and cisterns.

Up to December 23, 1904, neither the naval station nor the local government was prepared to meet a quarantine emergency at the port. The arrival on that date of a case of smallpox in the station ship *Supply* from Manila, caused preparations for isolation and fumigation to be made at once. The local government had on hand at a satisfactory site on Cabras Island an unfinished structure which was converted into a serviceable quarantine building. The main room or ward is 20 by 20 feet and the bathroom 7 by 7 feet. It contains all the essentials for receiving four cases of infectious disease at once.

In 1856 the population of this island was reduced about one-half by an invasion of smallpox. After that the Spanish authorities vaccinated people from time to time, but the last extensive vaccination by them was done more than fifteen years ago. In 1902 the American authorities began general vaccination, but after vaccinating a few hundred persons the work was dropped. The work has just been set afoot again, about 2,000 vaccinations will have been done within two months and a well-considered plan has been prepared and approved for the vaccination of all the inhabitants within the next six months. The work will be done mainly with lymph from Manila as fast as opportunities are presented to bring it here in suitable quantities. General vaccination will be begun and finished in the remote southern pueblos which are inaccessible to constant observation before it is done in Agaña and its districts.

The recommendation made and repeated by several of my predecessors that the term of service here be limited to two years is concurred in. Men who, because they have married here, or for some other good reason, desire to remain longer may properly be allowed to do so, especially if in continuing good health, but the monotony of barrack life in the tropics and in so isolated a place tells unfavorably upon the health and spirits of the majority within two years.

By far the greater part of the work of the three medical officers on shore duty in Guam and the one medical officer of the station ship consists in looking after the civil population of over 10,000, inhabiting a territory of 207 square miles (about three times the size of the District of Columbia). No exact figures can be given for the number of natives treated in the Maria Schroeder Hospital and at the dispensaries at Agaña, Asan, Sumay, and Agat, nor of the number of house visits made by the doctors and the practicante. From the average day's work, however, it can be conservatively stated that more than 7,000 calls have been made at the dispensaries and more than 5,000 house visits have been made during the year. Between 25 and 30 natives have been taken as bed patients in the Maria Schroeder Hospital and the Sumay infirmary. No commissariat is established, the families and friends furnishing required subsistence directly in each case. A semitribal or clanish system among the Chamorro people renders this an easy plan even in the cases of the poor.

The department of health and charities inspects all meat, fish, and other foods offered for sale in the public market of Agaña and orders the disposal of articles condemned. It examines all beverages imported into the island for sale. During the past year a total of 92 samples of malt liquors, wines, and spirits have been submitted and examined. Of these 69 have been passed for importation and 23 forbidden entrance into the island. In this way many of the vile oriental imitations of European liquors formerly sold here have been blacklisted and permanently excluded from this market. All of the 23 condemnations were made prior to June 15, since which time all liquors examined have been of good quality. Several analyses of potable water have been made.

The local law requires a yearly tax of labor in kind of all able-bodied male inhabitants between 18 and 60 years of age, and the health officer must examine and certify every year all men physically unable to render this service. Forty-five of these certificates have been granted during the year 1904.

The public schools having been opened in June and attendance made compulsory for children between the ages of 8 and 12 years from September 18, and the local law imposing a penalty upon parents of 25 cents for each day of a child's absence from school without good reason, a physician's certificate being required when the reason given is sickness; 322 children have been so certified as absent from school and under treatment between September 18 and December 31. The physician holds the discharge stub till the child is well, when he issues it as a permit to return to school, the child not being readmitted without it.

A death certificate from the health officer is a necessary preliminary to obtaining a burial permit from the gobernadorcillo of the district in which the death occurs, unless said district is so remote that medical attendance is not procurable; 207 such certificates were issued in the Agaña district out of a total of 287 deaths for the entire island. There were in the civil population of Guam during the past year 78 marriages, 492 births, and 287 deaths. Two hundred and eighty-seven deaths in a mean population for the year of 10,252 gives a death rate of nearly 28 per thousand for the island. The births exceeded the deaths by 205, giving a gain of nearly 2 per cent on the population. This conservation of life for the island is due in great measure to the labors of the trained and licensed midwives. During the past year there have been but 1 death from puerperal septicæmia, and 5 deaths from umbilical infection among the new born. The birth and death rate of the island for the past five years is here given:

Year.	Deaths.	Births.	Gain.
1900	288	328	40
1901	258	435	177
1902	243	400	157
1903	263	526	263
1904	287	492	205
Total gain, by births			842

The present civil population is about 10,355. This gain is exclusive of immigration. Before the American medical service was established here the infant mortality was appalling and the population of the island was stationary or dwindling. This conservation of lives is of highest economic importance to the island, which is greatly underpopulated.

The infant mortality in the known class was thus 41 from all causes; 50 of the 287 deaths in the whole island were of persons over 50 years of age.

SPECIAL NOTES ON THE PATHOLOGY OF GUAM.

There is no malaria in the island of Guam. The *Anopheles* mosquito is not found. The *Stegomyia fasciata*, or a mosquito closely resembling it, is abundant, but yellow fever has never been introduced. Yaws is a common disease, as this report elsewhere shows.

It will be noted that tuberculosis, with 39 deaths, accounts for more than 20 per cent of the deaths from known causes, a not unusual percentage elsewhere for this disease.

In 17 necropsies during the year on natives dying from various causes lumbricoid worms were found in the intestines in every instance, and twice they had escaped into the peritoneum through simple or tubercular ulcers. The lumbricoid worm is a veritable curse in this community. Practically no one can stay here six months and escape an invasion of this parasite. In whole American families consisting of four or five persons of all ages, who are as careful as possible with their diet and drink, all, or nearly all, are victims.

This is because the eggs are so abundant in the dust that blows, in the soil of the garden, in the craws of chickens, on the hands of servants, that the mere precaution on the part of certain individuals to drink only distilled water gives them no security. The natives are simply overwhelmed with these parasites. Until their bowels are packed to obstruction with them they take little account of them, considering the presence of worms in their stools a natural thing. From a man 240 have been removed, from a woman 170. I have seen a child vomit 8 adult worms at once. It is almost routine practice to give each native patient santonin and calomel preliminary to other treatment, no matter what his symptoms. It does not fail in 5 per cent of cases to expel worms. I believe that all the native deaths here reported as gastro-enteritis and peritonitis, 28 in number, or 14.6 per cent of all deaths for the year from known causes were caused directly by this parasite. The conditions which perpetuate this parasite and this disgusting, insanitary, and dangerous state of things were fully described in a special report to the governor of Guam on June 16, 1904. These conditions are entirely removable at an expense of $50,000 for a pure-water supply, and it is hoped that relief will be afforded at once by the United States Government. It is hoped that the Navy Department will throw its great influence into the scale by representing this matter to the end that help may be had from Congress. The part played by this parasite in the causation of disease and death in this town of Agaña is such that a statement of the facts as they are must seem like an exaggeration to anyone not familiar with them.

Spasmodic bronchial asthma is unusually prevalent in Guam. It affects natives at all ages. The intelligent ones among them attribute it, probably correctly, to sudden changes in the atmospheric conditions. The atmosphere has always a high humidity. Sudden widespread epidemics of this trouble occur generally at the change of seasons, about July and November, when the trade wind gives place to the southwest monsoon, or vice versa. Within forty-eight hours hundreds of persons will be suddenly afflicted, many dangerously, a considerable number fatally. The symptoms and signs are simply those of spasmodic bronchial asthma, without catarrh or fever, and with labored, but otherwise normal heart action. The disease has been mistaken for influenza, but the entire absense of fever precludes such a diagnosis. The symptoms are just those generally seen elsewhere in asthmatics at or after middle life. All ages are affected, from 6 months to fourscore years. Within a week, with a change of the weather, the whole epidemic subsides, and those that have not died are well, except for traces of emphysema after repeated attacks. As the mortality table shows, 27 out of 191 deaths from known causes, or more than 14 per cent, were from this disease.

In rhino-pharyngitis mutilans (destructive ulcerous rhino-pharyngitis), we have a disease to deal with which no one of us or of our predecessors has understood. We have no name for it, except the descriptive one which is here proposed. Many cases of it exist in the remoter pueblos and in the country which have not been seen. The disease early in its progress affects the quality of the voice, and in an advanced stage renders the face repulsive, so that many of its victims avoid public notice. Between 40 and 50 cases have been seen, treated, and studied as long as they could be kept under observation. Many others are known to exist that will not present themselves for treatment. It is estimated that there are from 100 to 150 cases in the island. Among those seen regularly, one case, aged 3, and one, aged 4, died, and another, aged 9, was carefully observed and treated for several months and was improving decidedly when she left Agaña for Merizo. These three have been the youngest cases seen. The rest are of all ages up to 80 years.

It is not unusual for a casual visitor here, even a medical one, to remark, "You have leprosy here, don't you? I met a leper as I was coming up the road." We can assure such a one that we have segregated all the known cases of leprosy in the island, and believe we have them all. He has met one of our noseless victims of rhino-pharyngitis.

The usual history of a case of this disease is as follows: The patient, if seen early, as few are, complains of sore throat. On examination an ulcer is seen on the back of the pharynx, on a posterior faucial pillar, or on the free edge of the palate. It is superficial, movable, covered with a thin, dirty, brownish gray pellicle of slough. This appears to be the initial lesion. The pellicle breaks down and leaves an ulcer, which steadily increases, advancing up the throat into the posterior nares. The disease begins in the soft parts, but after reaching the soft palate and eating its way through its entire thickness attacks the bone of the palate and nasal septum, finally destroying these entirely. The disease usually arrests itself at this stage, the ulcers healing, and leaves the victim with no septum, the nasal cartilage and skin falling in, and the nose and mouth one large cavity. The disease rarely, if ever, advances downward from the starting point. The larynx is unaffected and phonation remains perfect, though articulation and the quality of the voice are sadly deranged, as in a bad case of cleft palate. In a few of the cases, fewer than 10 per cent of them, the process is not arrested at this stage, and the ulceration destroys the cartilage and skin of the nose and advances upon the face. The upper lip always remains as a bridge across the large opening in the face, but above it, through the anterior nares, one looks into the mouth and down the throat. The tongue is unaffected.

The disease certainly appears to be of an infectious nature. The process is somewhat amenable to local surgical and antiseptic treatment with tonics and iodides. But the infection is very difficult to eradicate, and, though the process be apparently arrested for the time, it tends to recur till it runs its course. The general health and strength are practically unaffected in a majority of cases. Throughout the active stage of the disease, which sometimes lasts months or years, the patients, if so in the first place, remain muscular, well fleshed, and well blooded, their condition being thus in marked contrast to the anæmia and debility which accompany tuberculosis and tertiary syphilis. It thus seems to be local, not constitutional, and this suggests that its cause may be of a fungoid nature.

This disease appears to be known only in some of these islands of Polynesia. It is reported to be common in the Carolines. The local practicante here, an educated Filipino, practiced five years in the Carolines before coming to this island. He holds a Hutchinsonian theory of his own, that the etiology of the disease may be connected with the eating of rotten sun-dried fish, of which the Caroline Islanders are fond. The Chamorros of Guam have the same weakness. Doctor Daniels, of Fiji, quoted by Manson, definitely excludes syphilis from its etiology, and thinks that it may be a sequel of yaws. Doctor Alvarez, of Honolulu, has expressed the opinion that it is syphilitic, and has no connection with leprosy. In an allusion made to the disease in a report to the governor of Guam in March, 1902, Surg. W. F. Arnold, U. S. Navy, says he is not at all inclined, from what he has seen of the disease, to ascribe it to syphilis.

The disease has been assumed by medical newcomers and casuals here to be a form (1) of leprosy, (2) of hereditary syphilis, (3) of tertiary syphilis, (4) of tuberculosis, or (5) a sequel of yaws. There are good reasons for believing that it is none of these, but a peculiar, independent disease. I shall attempt to summarize these reasons.

Argument against (1) leprosy: Only visitors not familiar with leprosy itself have ever thought it to be leprosy. Lepers are not known to suffer from this peculiar form of destructive ulceration, and from its effects throughout life, and from no other sign or symptom of leprosy. Leprosy is sufficiently common all over the tropical world where this disease is not encountered.

Argument against (2) hereditary syphilis: It appears in healthy and well-developed persons of all ages, with no signs of hereditary syphilis in their own persons or in their brothers and sisters; and with no signs of syphilis in their parents.

Argument against (3) tertiary (acquired) syphilis: Acquired syphilis is a common disease in most races over nearly the whole world. It is an extremely rare disease here and neither primary nor secondary syphilis has been seen in a native during the past year, among thousands of persons treated for other diseases, including several prostitutes. This disease is common here and rare or unknown where syphilis is common. Doctor Daniels, who was in Fiji many years, states that there was no syphilis in Fiji at a time when the lesions observed in this disease were common. The appearance of the primary lesion of this disease in otherwise healthy children of healthy parents, at 3, 4, and 9 years of age, excludes acquired syphilis.

Argument against (4) tuberculosis: The victims of this disease have no signs of tuberculosis in other organs or parts. The disease does not extend downward and become laryngeal. Instances are observed of several members of the same family all afflicted with only the peculiar lesions of this disease. Tuberculosis is common here as everywhere and presents the same lesions here as elsewhere in the world. This disease is confined to a very small part of the world so far as known.

Argument against its being (5) a sequel of yaws: Yaws is a very common disease in the tropical world. It is common here. About 30 cases have been seen during 1904, 17 of them in school children (as noted above). While a few cases of rhino-pharyngitis give a history of yaws, fewer still show any yaws marks or scars, and the large majority deny a yaws history. None of the 3 cases in children of 3, 4, and 9 years showed any evidence of having had yaws and it is believed that none of them had had it. The girl of 9 was a particularly handsome child with a beautiful unmarked skin. I have heard that yaws is common and this disease unknown in the Philippines. While it may or may not be true that in every place in Polynesia where this disease exists yaws also exists, yet there are many places where yaws exists and this disease does not. We are ignorant of the etiology of yaws, as we are of the etiology of this disease, and we have no reason to assume that they have the same etiology. I see no evidence to warrant the assumption that this disease is a sequel of yaws.

The study of this disease offers a fine field for the labors of any school of tropical medicine which might be disposed to send an investigator with a good equipment to this island.

The Tumon leper colony, established in 1902 by General Order, No. 43, has 24 inmates, there having been one death and one admission during the year. Two more suspects are now under observation. Two illegitimate births occurred in the colony during the year. One child was premature and died within twenty-four hours. The other, born April 25, was promptly removed and placed in the care of foster parents in Agaña, and at the end of the year is thriving well with no signs of disease. The department of health and charities employs there a superintendent and two guards. The inmates of the colony have cultivated an increasing amount of ground each year. They have this year in their gardens a considerable quantity of sweet corn, squash, taro, camotes, and tobacco. There are numbers of cocoanut and breadfruit trees on the reservation. They keep, besides, a few chickens and catch a few small fish off the neighboring beach. Like other leper colonies, however, Tumon will never be self-supporting; and the insular government had to supply them with salt meat, hard bread, and rice at an expense of $2,427.90 (Mexican), and meet a total expense for the colony of $3,680.34 (Mexican) for the past fiscal year.

During the year 1904, 57 seagoing vessels of all kinds entered the port and 58 cleared. These were all boarded on entering and issued bills of health on clearing. The duties of quarantine and medical boarding officer, enforcing the local quarantine regulations and issuing bills of health, are discharged by the medical officer of the station ship when she is in port. He also looks after the towns of Sumay and Agat. The station ship has been absent from here a total of one hundred and sixty-six days during the year 1904, or nearly half the time, on necessary voyages to San Francisco, Shanghai, Cavite, and other ports, and during such absences this work devolved upon one of the medical officers at Agaña, adding considerably to the demands upon his time and strength.

It is very desirable that a fourth medical officer be assigned to shore duty in Guam, and it is so recommended. Should the Bureau make this increase in the complement of medical officers for this station, it would be desirable that the fourth officer be a junior medical officer, selected for his attainments in pathology, and that he be sent for a full tour of duty here to give his attention, under the direction of the senior medical officer, almost exclusively to laboratory and pathological work. There is abundant material, and such work ought to be seriously taken up and systematically done. It is neglected now, partly because there is no one here especially interested in such work or competent to do it, and because the professional and executive demands upon the present force leave them no time to pursue it.

The differential diagnosis of early leprosy, the investigation of other pathological conditions more or less peculiar to Guam, the work connected with public sanitation, and the routine laboratory work which should go hand in hand with clinical medicine would keep a competent pathologist constantly employed, and would redound to the benefit of this population and to the credit of the service.

REPORT ON THE U. S. RECEIVING SHIP INDEPENDENCE.

By C. P. Kindleberger, *Surgeon, U. S. Navy.*

For sanitary reasons, this ship should be abandoned as a home for officers and men and in its place modern quarters and barracks erected on shore.

Seven large ports (35 by 26 inches) were cut through the side of the ship, and the berth deck is now supplied with a much larger amount of fresh air and sunshine than formerly. The wooden awning from the ship to the laundry and bath house has been practically completed, and will be a great protection to the men in rainy and hot weather.

The civil engineer of the yard has submitted an estimate of $4,200, available in the next fiscal year, for raising and moving the laundry and bath house from its present exceedingly insanitary position out to the new wharf line. It will be supported there on piles over tide water, a new floor built, and proper drainage installed.

A large refrigerator for the general mess was built during the year. It is located on the dock close to the ship and has proved very useful and efficient. All fresh meat and the left-over cooked meat is kept in excellent condition as long as necessary, and the number of flies in the galley and aboard ship has been materially reduced.

A canteen was started on this ship May 15, 1904, and has been very useful and convenient for all hands.

The ship has been painted inside and out during the year, and fresh whitewash, containing a 1:2,000 solution of bichloride of mercury, applied to the holds, bilges, and inner side of roof. Modern iron beds have been allowed for the wardroom officers in place of the antiquated wooden bunks. The new bowls requested for the officers' water-closets were not allowed; the bowls now in use, while of a modern type, do not flush properly and are considered insanitary on that account.

During the year several cases of infectious and contagious diseases have occurred on board, and twice the holds, decks, and storerooms have been thoroughly sprayed with a solution of bichloride (1:2,000) and vinegar (1:1,000); the berth deck and hammock nettings have been sprayed three times. A very simple and effective spraying apparatus is used on this ship, and may be described as follows: A large, strong barrel is placed on its side and fastened to a truck having four small wheels; a good-sized square hole is cut in the barrel for the admission of air and solutions. On a platform at one end is secured a force pump with long rubber hose and watering-pot nozzle. With this apparatus, which is easily transported up and down gangway ladders, every portion of the ship is accessible for disinfection, and can be quickly and thoroughly sprayed.

There are 220 hammock hooks on the berth deck and 240 on the gun deck, allowing approximately 69 and 83 cubic feet of air per man, respectively. Owing to the present overcrowded condition of the sleeping quarters below and the liability to disease from this cause, the medical officer has recommended to the commanding officer that the spar deck be fitted with hammock hooks to relieve the congestion.

In the sick bay a new hard-wood floor has been laid, and a modern sink with hot and cold water. and a basin for the use of venereal patients installed. A new washout bowl has been placed in the sick bay water-closet, and the medical storeroom enlarged and new lockers built for medicines. All the ports in the sick bay are covered with wire screens and a large electric fan has been placed in the best position for changing the air and keeping the room cool.

A dentist (hospital steward) has been at work in the sick bay since June 16, and has been of great assistance to the medical officer. He does dental work for members of the crew, and for the men from cruising ships temporarily at the yard.

During the year the sick bay has been frequently disinfected by formaldehyde gas and steam. A few days before a large draft left the ship to put the *Ohio* in commisison two cases of mumps developed. These men were isolated and sent to the hospital and the bags and hammocks of the rest were disinfected by formaldehyde gas and steam, in the small washhouse near the ship. The steam disinfecting boiler has been used constantly during the year for the disinfection of clothes and bedding.

Since the last report extensive work has been done on the grounds near the ship by the enlisted force. The soil has been plowed, harrowed, and planted with clover and alfalfa, roads have been built and surface drainage attempted. A 730-yard running and bicycle track has been constructed, with a baseball and football field inside. A fine tennis court has been made and two handball courts built. Three thousand dollars is to be added to the estimates for the coming fiscal year for the construction of a bowling alley. Flower beds and walks have been laid out and a fountain is being constructed near the drill hall. An extensive garden is about to be started, and over 500 shade trees, fruit trees, and bushes will be planted in the near future. The yard railroad track has been extended to the shore end of the connecting wharf, and will greatly facilitate the future delivery of coal and freight.

The greatest number on board during the year was 608; the smallest, 242; average complement, 544+. Recruits to the number of 798 were received on board during 1904, and in most instances they were men of excellent physique. Four hundred were examined on board during the year for enlistment, and 71 rejected.

REPORT ON THE UNITED STATES NAVAL STATION, PUGET SOUND, WASHINGTON

By D. N. Carpenter, *Surgeon, U. S. Navy.*

The contagious diseases occurring during the year were morbilli, 3 cases, and rubella, 1 case.

The navy-yard dispensary is located in the building designated as a United States naval hospital, and is administered as part of the hospital. Accidents to workmen in the navy-yard, of which several occur each week, are treated here, and the sick calls and dispensing for the station are attended to by the staff of the hospital. A small laboratory has been completed and everything is now in readiness to do the necessary examinations for the station.

The hospital, though small, is complete and satisfactory for the winter's work, but during the summer months, owing to the arrival of the Pacific Fleet, it is overcrowded and insufficient. This already has been brought to the Bureau's notice, and a site recommended for a new hospital.

During the summer months the temporary congestion has been relieved by tents, and this undoubtedly will have to be done each year. The pesthouse now in use will soon have to be torn down to make room for a new road unless its removal and repair is authorized by the Bureau.

There is no disinfecting chamber at this hospital or station. The receiving ship should have such a plant to handle the effects of men transferred or received, and it is strongly recommended that a small building be constructed on the pier close to the ship and a large disinfecting chamber installed. If this be erected it will be possible to have the effects of contagious patients thoroughly disinfected, and the medical officers of the station will be in a better position to successfully handle any epidemic which may arise.

The sanitary condition of the U. S. receiving ship *Philadelphia* is excellent and the sick bay adequate.

The sanitary condition of the marine barracks is very good. There is an apparent overcrowding at present, but in reality the number of men actually occupying each room is not great, owing to the vacancies caused by standing guard.

Recruiting for the entire station has been done at the hospital, the total number examined being 447, of which 281 were accepted and 166 rejected.

REPORT ON UNITED STATES NAVAL STATION, CAVITE, P. I.

By F. L. Benton, *Passed Assistant Surgeon, U. S. Navy.*

The health of the personnel of this station during the past year has been very good in comparison with that of other years. This is in all probability dependent upon the fact that the rains of the past wet season have been unusually light, with consequent diminution of dampness, which indirectly has accounted for the small number of cases of dengue fever, malarial, rheumatic, and respiratory diseases.

The medical history of the station has been uneventful during the past year. The principal cause of invalidism is anæmia, which appears to affect almost everyone in time, making itself evident after a period of one year or more, being most marked in those performing shore duty.

There is a well-marked physical and mental deterioration in those who remain here for a prolonged period, and it is recommended that two years be the extreme limit that officers and men be required to remain on duty at this station.

The use at this station of distilled water for drinking purposes has been discontinued; since December, 1904, water obtained from an artesian well has been used. This well has a depth of 580 feet and affords a plentiful supply of water of good quality. This water was not used until after repeated bacteriological examinations and chemical analyses, and it has proven satisfactory in every particular.

There were 380 cases of disease and injury among the native workmen, which were treated at the yard dispensary.

A dentist, with the rate of hospital steward, has been assigned to duty at this station, and very satisfactory results have been obtained from his services. During the year he has given 1,904 separate dental treatments.

The work at the naval medical supply depot has been unusually active. More requisitions have been filled during the last quarter of the past year than at any time since its establishment.

REPORT ON THE UNITED STATES NAVAL STATION, CULEBRA, P. R.

By G. L. ANGENY, *Passed Assistant Surgeon, U. S. Navy.*

During the month of January the marine detachment at this station was transferred from Camp Roosevelt across an arm of Great Harbor into the new barracks, on the town site of San Ildefonso, where the naval station has been established.

This site comprises the entire naval reservation on Great Harbor, and from a sanitary point of view is well suited for a naval station. From Great Harbor it extends to the north in a gentle rise for a quarter of a mile. About half of the eastern boundary is formed by an arm of Great Harbor, while on the west another arm of Great Harbor is embraced by the reservation. The ground all slopes toward these waters, affording excellent natural drainage, and it is of sufficient elevation to give free exposure to the prevailing winds—a very essential feature in the Tropics.

The new marine barracks is situated about midway between the northern and southern limits of the reservation. It is a wooden pavilion 20 by 240 feet. A porch extends along the entire southern side. It is comfortable and ample in size for the present garrison. The chief objection is that no provision has been made for screening it from mosquitoes, and the construction is so loose that any attempt to accomplish that end now would be futile.

A dining room 20 by 60 feet is attached to the western end of the barracks, and in the rear of this is a kitchen, with provision and ice storerooms, while a little more distant is a brick oven which has supplied the command with excellent bread throughout the year.

The roof of the barracks has been guttered, and the rain water thus collected led into the old Spanish cistern in front of the barracks. This cistern has been repaired and now has a capacity of 17,500 gallons, which has been held as a reserve, the regular supply of water for the station coming from the water barge in the harbor.

This barge has been filled twice during the year with water of good quality from San Juan. The water was sterilized before using until it was observed that the men quartered on the barge were using it unsterilized and that no case of illness had occurred among them for a number of months. The entire command has used it unsterilized for the past seven months without ill effect.

The sick quarters are located about 50 yards northwest of the marine barracks, and on more elevated ground. The site is a good one for a hospital, and, having in view the contemplated improvements at this station, it has been recommended that this plot be reserved for that purpose. The building itself belongs to the Marine Corps, and was originally erected on the old camp site. In June it was taken down in sections, floated across the bay, and reerected where it now stands.

The attention of the Bureau has already been called to the unsuitability of this building for sick quarters. At the present time a shed addition is being made which will give space for a dispensary, storeroom, and rooms for hospital steward and hospital apprentices. The whole of the original building can then be used as a ward into which it will be possible to crowd 7 beds. In addition to the objectionable overcrowding, the absence of a porch on the south side allows the sun to beat into the ward for many hours each day, making it extremely uncomfortable, while the building is so loosely constructed that it can not be protected from mosquitoes. It is again urged that a suitable hospital, under the control of the Bureau of Medicine and Surgery, be erected at this station.

From the marine detachment, with an average strength of 89 for the year, there have been 232 admissions and readmissions, with 1,209 sick days. One hundred and seventy-seven of the admissions and readmissions and 768 sick days were due to malarial fevers. Dengue has given 15 admissions, with 57 sick days.

Most of the cases of malaria have been of the benign tertian type, although a number of cases of the estivo-autumnal tertian fever were observed. Since June the blood of malaria cases has been examined microscopically, and, with few exceptions, the presence of the parasite readily demonstrated.

Recurrences have been frequent, although in almost every case systematic after-treatment has been carried out for a period of five weeks. The routine has been 30 grains of quinine for three days, then 15 grains daily for two weeks, and following this 15 grains weekly for three weeks longer. In several instances recurrences took place while the patient was taking 15 grains of quinine daily. At one time there were 35 men taking this after-treatment.

One case of hæmoglobinuric fever was observed. In this case the urine cleared and prompt recovery took place under full doses of quinine.

Notwithstanding the large number of cases of malaria, the men appear well and robust. No cases of malarial cachexia have occurred and only 3 men have been invalided from the island with malaria, all 3 being returned to duty again in a short time. One case of dysentery (catarrhal) occurred.

Mosquitoes abound everywhere on the island, and are especially numerous after the heavy rains. Many species of *Culex* and *Anopheles* have been identified. The *Stegomyia fasciata* is also numerous.

Systematic oiling of all standing water on or near the reservation has been carried out since June, but, owing to the limited area over which the Navy has control, this proceeding has not been as productive of good results as could be desired.

If anything is to be accomplished in the way of ridding this station of malaria, the sanitation of the entire island must be placed under the control of the Navy. Few places offer such excellent opportunities for demonstrating the good which can be accomplished by mosquito extermination.

The native population of the island is estimated at 1,200. About 200 are living on the naval reservation. They are a physically inferior and sickly lot. It is safe to say that 75 per cent of them suffer from malaria at some time during each year. The majority present marked "ague cakes," and malaria crescents can be demonstrated in the blood of many of them. They are a constant source of infection to the garrison, and the increase of malaria among the marines since they have been quartered in the new barracks is undoubtedly due to their having been brought into closer association with the natives. Free treatment for malaria has been accorded the natives as far as the supply of quinine allowed. A more systematic treatment of this disease among them is regarded as a wise and really necessary sanitary measure.

The climate of the island is excellent, and aside from the malaria it may be considered very healhty. There were 15 deaths among the natives during the past year, 5 of which were attributed to "fever." Several cases each of bronchial and croupous pneumonia have been observed. The natives have received treatment for a number of minor surgical conditions.

REPORT ON THE UNITED STATES NAVAL STATION, TUTUILA, SAMOA.

By E. G. PARKER, *Passed Assistant Surgeon, U. S. Navy.*

During the past year the station has been continually improved as regards grading and filling in. The shore line from the western limit of the reservation to the coal dock has been straightened, filled in, and a good sea wall built. Grading and filling in from the coal dock to Observatory Point is not yet completed. A great deal of low, marshy land has been disposed of by this means, and consequently the breeding places of mosquitoes have been greatly diminished, and are no longer the pests they were at this station. The general sanitary condition of the station has been good.

A reservoir of 218,000 gallons has been constructed, and there is a plentiful supply of excellent water. The watershed comprises 215 acres, of which 15 acres are used for the cultivation of taro. There is reason to believe that the whole area may at some time be used for a like purpose. This can only be guarded against by the purchase of the watershed.

There is but little variation in temperature from season to season, the average being about 83° F.

The general health of the Samoans, including the native guard, has been fairly good. There has been no epidemic of a serious nature. There was, however, a mild epidemic of influenza-like bronchitis, among the native guard, which was thought to be due to the wearing of the undershirts (a part of the native-guard uniform) when wet. The frequent rains make it almost impossible for the native soldiers to keep these shirts dry all day. An order was therefore issued that the shirts should not be worn except at drills and on post, that plenty of cocoanut oil should be used, and the soldiers to return otherwise to the native way of living, as far as could be done. The effect was marked, since the colds all disappeared rapidly and permanently.

There is a large and important clinic at the hospital, where all sick natives are given treatment. Nearly 7,000 patients are treated during the year.

During the experience of Passed Asst. Surg. H. E. Odell, for a period of about one year, the following surgical operations were performed by him:

Removal of testicle, 2; amputations, 6; hydrocele, 3; necrosis, 4; abscess, (deep), 17; laparotomy, 5; elephantiasis-scrotal, 12; tuberculosis of knee, 1; lacerated perineum, 1; hemorrhoids, 4; ulcer (excision), 1; abscess of liver, 1; removal of putrid placenta, 2; removal of cystalline lens, 1; inguinal adenitis, 4; gunshot wound, 1; varicocele, 1; osteotomy, 1; lymphadenitis, 1; elephantiasis (leg), 2; malignant growth, 1; hernia, 1; curettage (uterus), 2; appendicectomy, 1; ganglion of wrist, 1; pterygium, 1; phlebitis, 1; paracentesis pericardii, 1; craniotomy, 1; mastoid, 1; total, 81.

In connection with this the services of a medical officer are very much needed at Manua. There is more illness there than at Tutuila, and absolutely no one who can dispense medicines intelligently. There is no communication except by open boat, and then at long and uncertain intervals.

Elephantiasis is the curse of this country, there being very few who are entirely free from the disease in some form or another. Ringworms, yaws, indolent ulcers, boils, etc., are common skin diseases. Of the general diseases, tuberculosis, surgical and pulmonary, are common. Asthma, chronic bronchitis, pneumonia, pleurisy, and other lung affections have been on the increase since the natives have been made to adopt the European style of dress

Deep abscesses of the limbs, axilla, and thorax are seen almost daily at the clinic. Hydrocele is very common, though frequently seen in connection with elephantiasis. The native method of treatment is by puncture with the bone of a bat's wing. The roundworm and threadworm are common intestinal parasites. No anchylostomiasis has been seen during the past year, although it was formerly quite prevalent. Infants form a goodly number of the patients treated at the hospital. They suffer from bowel and other affections dependent on malnutrition.

The hospital at this station is far from what it should be. It was a trader's store, over 30 years old, rotten in every part, leaking, and infested with vermin. It is built on the ground, with no air space underneath, and is consequently damp and disagreeable. When crodwed, it can not accommodate more than 5 patients. It is situated on the public highway, where privacy and quiet are impossible.

Since the sick bay of the *Adams* can not be used for any sick person, it is an urgent necessity that a suitable hospital be built here. A ward of 10 or 15 beds and a modern operating room would answer present requirements.

Back of the naval hospital is situated the native hospital. It is a thatch-roofed native hut and answers its purpose well. This should always be maintained in connection with whatever Government hospital may be built, as long as the naval medical officer is to care for the natives. It is not feasible to have the native sick in the naval hospital, for each patient from far or near must bring all his mats and perhaps a half dozen of his family, who are to keep him company in his illness. These friends are regarded as an absolute necessity by him, and therefore must have accommodation which is only possible in a native hut.

There is at present urgent need for more officers' quarters and it is expected that these will be shortly provided. An electric-light plant is much needed for lighting the station and houses. The oil lamps now used in the houses make them uncomfortable to say the least. As has been formerly suggested, this plant could be readily installed in the building now used for the ice plant. It would be of great service to both the station and ship.

The medical officer at the station is also the quarantine officer, and all incoming vesels are boarded and other means taken to prevent importation of contagious disease. This quarantine can not be strict as regards the whole island, since the ports of Faga Saa and Leone, having no quarantine officer, are frequently visited by inter-island and other craft.

U. S. S. ADAMS, STATION SHIP, TUTUILA, SAMOA.

The *Adams* is at present lying moored to the coal dock, where she has been since her arrival in May. She has none of the modern conveniences, and in her present condition is entirely unsuitable for use as a station ship in the Tropics. She has no artificial ventilation, therefore all living spaces below the gun deck are almost uninhabitable. The discomfort in these places is increased at night, since the only means of lighting is by oil lamps and candles. The berth deck is so hot and poorly ventilated that all messes save one have been removed to the upper deck. The sick bay, situated on this deck, is used only as a dressing place for minor injuries; it is so hot and uncomfortable that it can not be used as a place for the care of the sick. All sick are therefore immediately transferred to the hospital on shore. The wardroom is particularly uncomfortable, being poorly ventilated, hot, and close. Such officers as are living on board must sleep either on the spar deck or in the cabin, since to sleep in the staterooms is well-nigh impossible. The gun deck, on account of its large gun ports, is better ventilated, and, although far from comfortable, is a great improvement over the decks below; it affords protection at least from the heavy tropical rains, yet many of the crew prefer sleeping on deck.

The water supply comes from the yard, and there is an abundance of good potable water. There is a shower bath on the dock, which is available at all times, and is greatly enjoyed by the crew. Although there are a few accommodations for the crew, there are absolutely none for the officers, and one could hardly imagine a more uncomfortable living place in the Tropics than this ship with her present lack of all conveniences. A barracks of sufficient capacity to accommodate at least one-half of her crew should be erected on shore, where those who are not needed on board at night might sleep. This would contribute much to the health and comfort of all.

The men are given forty-eight hours' liberty every week, with permission to go anywhere on the island. This should serve to keep the men in good spirits, but there is still some discontent. The chief reason for this is probably the fact that, excepting these excursions, there is absolutely no diversion for them. Baseball is encouraged, but it alone does not satisfy. One hears much about the discontent of the men being due to climatic conditions, but there is reason to believe that the true cause is lack of suitable diversion. The climate is not so bad for the Tropics, although enervating. It is believed that if a bowling alley and a pool room were available for the amusement of the men much of the complaint of the climate would disappear. A suitable building for this purpose might be erected at a small expense, and it is believed that the effect would be very beneficial. It is also suggested that in connection with this place light refreshments, especially light beer, be sold to the men, under proper restriction. This, it is believed, would effectually put a stop to the smuggling of liquor.

The general health of all on board while the ship has been in Tutuila has been good. There has been no serious illness, nor has the sick list ever been large. The only condition which gives trouble is the great frequency of intractable ulcers and superficial sores. Boils are very common, and are usually followed by troublesome ulcers which take months to heal. The slightest skin abrasion is sure to be followed by infection and ulceration.

Considering the enervating effects of the climate and the lack of suitable diversion, it is recommended that no officer or man be kept on this station for a period longer than two years.

A suitable dynamo should be installed on board the ship, so that by fans and electric lighting the wardroom and all decks below be made more habitable.

It is recommended that the officers' rooms be built on the spar deck, and that a bathroom and shower bath be established in connection with these.

REPORT ON THE U. S. RECEIVING SHIP SOUTHERY.

By J. W. BACKUS, *Assistant Surgeon, U. S. Navy.*

During the year one death occurred on board. A marine returning from liberty fell through a hatch, fracturing the base of his skull.

One case of typhoid fever occurred. A marine who had been on board about three weeks was sent to the hospital with this disease and subsequently died there. There were no other cases on board, but an epidemic of typhoid fever broke out at the marine barracks where this man had been on duty, and it is more than likely that the disease was contracted outside of the ship.

Forty-one patients were transferred to hospitals during the year, of whom 2 were sent to the United States Government Hospital for the Insane, at Washington, D. C.

The sanitary condition of the ship has been excellent, all compartments being clean, dry, and healthy. There is no artificial ventilation on board, as every compartment receives an abundant supply of fresh air.

The distilling plant has a capacity of 5,000 gallons per day, and there are 6 storage tanks, with a capacity of 15,000 gallons. The crew and marines have separate quarters forward with separate wash rooms, closets, and urinals.

The prisoners' compartment is aft on the berth deck, and is large enough to accommodate 200 prisoners without crowding and to give them sufficient air space.

The prisoners are kept busy doing the police work around the yard, excepting the few who may be excused from duty for some physical disability. There is a physical drill on board ship for the men who work aboard, and when the weather is too bad to permit work in the yard all hands have a physical drill aboard ship.

The general mess is in a very efficient condition, and the quality of food excellent. A ventilator has just been installed in the ship's galley, which will improve conditions in that space.

The sick bay consists of a bathroom, small dispensary, and a space between these large enough for four bunks, two upper and two lower, and a desk. There is not sufficient room for an operating table, and ordinary examinations made with the patient on one of the bunks is difficult, inconvenient, and generally unsatisfactory.

REPORT ON THE UNITED STATES NAVAL RESERVATION, SUBIG BAY.

By F. M. MUNSON, *Assistant Surgeon, U. S. Navy.*

The health of the officers and men at this station during the past year has been very good.

Malaria and dengue are mildly endemic. Of the malarial fevers the intermittent type predominates, though the remittent does occur, especially among the natives in the town of Olongapo. Malarial cachexia is also seen. Comparatively few mosquitoes are observed and the *Anopheles* is rarely seen. Several small epidemics of malaria and dengue occurred, but in every case these started in companies recently returned from practice marches of from five to seven days through the surrounding country, and had, contrary to the advice of the medical officer, failed to provide themselves with mosquito nets. The senior medical officer accompanied one of these expeditions into a well-watered, mountainous region, and while few mosquitoes were observed, they were almost invariably *Anopheles*. Practically every man in that company had chills.

Owing to a systematic and rigid inspection there has been no venereal disease of any kind contracted at this station for five months, the few cases that exist having been contracted in Cavite or Manila. Typhoid fever and dysentery do not exist at this station. No case of cholera or smallpox has occurred among the men of the garrison or the natives of the surrounding country.

Medical attention was given the men of a detachment of the Corps of Engineers, U. S. Army, who, from May until December, were engaged in survey work on Grande Island and the shores of Subig Bay. Every man in the command was infected with malaria or dengue, or both. They were cared for at the sick quarters.

An ample supply of good distilled water for drinking and cooking is furnished by the distilling plant. An additional supply of water is secured from wells situated in different parts of the navy-yard; this is used for bathing purposes, but is quite potable.

The surface drainage is not good, a large part of the yard not being more than 2 to 5 feet above high-water mark. The Spanish naval authorities built several open masonry-work drains, but they are far from being sufficient. During the rainy season numerous pools of water serve as breeding places for mosquitoes.

The latrines for the men are built over tide water and are very satisfactory. They are frequently disinfected with crude carbolic acid. The refuse from the officers' and men's kitchens and sick quarters is removed twice daily in covered galvanized iron pails and deposited in a swamp at some distance from the barracks.

Four sets of temporary quarters for naval officers are now in course of construction. They will have board walls and nipa roofs, similar to the marine officers' quarters, which are situated in the upper part of the yard, and are roomy, dry, and well ventilated. They are provided with shower baths, tubs, and water-closets. The refuse is carried by a common underground drain into the bay. There is no general water-works system, a separate tank which must be filled by hand being provided for each house.

The marine barracks consist of three brick buildings used by the Spaniards as such, and three frame ones constructed by the quartermaster's department of the Marine Corps. They are all dry and well ventilated, but their size is quite inadequate for companies averaging over a hundred men each.

The sick-quarters building is frail, leaky, and poorly ventilated. It is impossible to preserve the medical and surgical stores from damage during the rainy season.

It is earnestly recommended that the new sick quarters contemplated for this station be built as soon as possible.

REPORT ON THE UNITED STATES NAVAL STATION, GUANTANAMO, CUBA.

By Harry L. Brown, *Assistant Surgeon, U. S. Navy.*

The general health of the personnel has been very good. There has been no contagious or infectious disease epidemic during the year.

On Dcember 21, 1904, a case of morbilli developed on board the U. S. S. *Wasp*, which ship was at anchor at that time in Guantanamo Bay. The patient was immediately transferred from the ship and isolated in a tent ashore, and every precaution was taken to prevent an epidemic of this disease on board the *Wasp* and at this station.

Fifteen cases of intermittent malarial fever have developed within the past two months, and an attempt has been made to determine a history of exposure to bites of mosquitoes, but without success. *Anopheles* mosquitoes are comparatively rare, but *Culex* and *Stegomyia* are plentiful. At the present writing, there are about 150 natives employed on this station, and a large majority of these men suffer from malaria in some form. Pernicious malaria is not uncommon.

It is believed that the intermittent fevêr among the enlisted force is associated with the prevalence of the disease among these natives. All of these cases have run a short course, and have recovered under treatment with quinine. At the Government light-house, which is located about 5 miles from the station proper, were found many *Stegomyia* mosquitoes and their larvæ. These were seen on the surface of rain water which had been stored in barrels. The barrels have been spigotted, kerosined, and fitted with covers.

There have been many cases of abrasions, boils, and ulcers admitted to the sick report, as a result of parties working ashore cutting brush. Serious sickness, with the exception of 3 severe cases of heat prostration, and 1 case of appendicitis, has been comparatively rare. Three deaths have occurred at this station during the year, two enlisted men and a native employee. One death was due to asphyxia from chloroform, to the use of which the man was known to have been addicted. Another death was that of an ordinary seaman, who was drowned by the capsizing of a boat. The third death was that of a native as the result of alcoholism. Observations of working parties ashore demonstrate that hard and continuous labor may be done in the heat of the day without any damage to health. There has been only one case of heat prostration among the men thus employed. There have been, however, several severe cases of heat prostration among the men employed in the galleys and engine rooms of the ships attached to this station. In two of these cases the patients were left almost totally blind. One of these cases were transferred to the naval hospital at Norfolk, Va.; the other case is still under observation, and it is believed that in course of time his sight will be restored.

It is a pleasure to state that the sobriety of the men on duty here is of a very high standard, due partly to the fact that every man finds his time occupied by work.

I have visited the civil hospital at Guantanamo and have learned that it is managed with great care and professional judgment, and that it is up-to-date in matters of ventilation and equipment. The building is of a very ancient design, being one story high and having four large wings, which completely surround and inclose a court. The hospital will accommodate about 150 patients, each wing consisting of two large well-ventilated wards. In each ward are about 20 beds. The physician in charge of the hospital informed me that the death rate in Guantanamo was very low, about 6 in 1,000, and that the general health of the city was good. In the hospital were a few cases of enteric fever and dysentery. Pulmonary tuberculosis is the prevailing disease. There were two cases of leprosy in the hospital, and there have been several cases seen on the streets of Guantanamo, who are supposed to be under surveillance of the authorities but not isolated. There has been no epidemic of dengue in this city for years. No cases of filariasis were observed. Several cases of elephantiasis were observed on the streets of Guantanamo. Two cases of ankylostomiasis have been admitted recently into the hospital, one case coming from Porto Rico. However, this disease is not prevalent in this locality. The houses and streets of Guantanamo are very insanitary, there being no sewerage system. Two cases of yellow fever were treated at a lazaretto at Cayo Duan, which is located a short distance from Punta de Sal. These cases, occuring in strangers, were very mild and made good recoveries. Punta de Sal and Cayo Duan were quarantined, and during this period there was no direct communication between this station and Santiago.

An abundant supply of water for the station and ships is obtained from Guantanamo, which city obtains its water from the Guaso River. This water flows from the neighboring hills of Guantanamo under great pressure, and could be piped to the station. At the present time this water is stored in a naval water barge, and is transferred to the ships as needed. Chemical analysis has proven this to be a very good water. Boring for water has begun and, if successful, artesian wells will be sunk. The question of obtaining an abundant supply of good drinking water forms a very serious problem.

There has been an unusually small rainfall at this station, as compared with that of the surrounding country. There is a rainy season in April, May, and June, and this is followed by a dry season of about three months, and then there is another three months of rainy weather, and this is followed by another dry season of the same duration.

In view of the fact that the work at the station is advancing with great rapidity, a great number of enlisted men are on duty, and many naval vessels are constantly stopping here, it is evident that some temporary arrangement should be made for the care of the sick until a naval hospital is eretced.

U. S. S. AMPHITRITE.

The *Amphitrite* has been employed at Guantanamo, Cuba, since February 10, 1904, as station ship.

The health of the personnel has been very good, the percentage of sick from all causes being very small. There has been no epidemic of infectious or contagious disease.

The sanitary condition of the ship is very good, but a ship of this type is certainly unsuitable as a station ship in the Tropics. The daily average of the temperature of the wardroom for six months beginning June 1 was 90° F., and a constant temperature of such a degree proved very depressing to the occupants of this part of the ship. The absence of an ice plant on board is very keenly felt.

U. S. S. MONONGAHELA.

The *Monongahela* was engaged in the training service up to May 9, since which time she has been employed as a storeship at this station.

With the exception of the forward berth deck and the steerage and wardroom aft, the berth-deck space has been apportioned into separate storerooms by means of latticed partitions, thus allowing access of whatever light and air are available. The engine room and distilling apparatus are located on the berth deck amidships. Ventilation of this deck is secured by means of wind sails and through metal wind scoops which fit into the portholes. In the main this method has yielded general satisfaction, but on occasions fails entirely, especially during periods of calm or when only very light winds are perceptible.

The health of the crew during the past year has been excellent. At no time could a disease be traced to the insanitary condition of the ship itself. There were during the month of December a large number of cases of tonsilitis. A bacteriological examination demonstrated that most of these were cases of streptococcus infection.

Lighting facilities are of the most primitive. Oil lamps and candles are employed throughout the ship, and the results are far from satisfactory. A dynamo to render proper lighting of the ship is greatly desired.

Sufficient drinking water is obtained from the distilling plant on board, which has a daily average of from 500 to 600 gallons. The total capacity of the fresh-water tank is 25,050 gallons. The drinking water for the ship's company is cooled by means of ice placed in the scuttle butt, sufficient ice being daily supplied for this purpose. Cool drinking water is much appreciated by the men, but nevertheless the absence of an ice machine on board a ship stationed in the Tropics is keenly felt.

Several of the civil employees connected with survey and other work in progress at this station have been using the wardroom as their living quarters. On November 19 one of these men was invalided home with pulmonary tuberculosis, the man having had several hemorrhages in his room. Upon this occasion the entire wardroom was sealed by battening down skylight hatches, and thoroughly fumigated with formaldehyde gas, using two Schering's deodorizing lamps for that purpose.

During the past few months there has been observed a slight predisposition to anæmia, especially among the harder-working portion of the crew, most of whom are employed on shore.

U. S. S. VIXEN.

The *Vixen* is attached to this station as a tender and has remained here throughout the year, except occasional trips to Santiago and Jamaica, and the period from July 3 to October 30, when she was undergoing repairs at the navy-yard at Pensacola, Fla.

The number of cases admitted to sick list has been small, the infections being limited to those of venereal nature.

On the night of October 8 four men of the crew met death by drowning at Pensacola, Fla.

The sanitary condition of this ship is fair. The ventilation of the officers' quarters aft and the berth deck forward, especially when at sea, is very imperfect, and it has been even worse than ever since October 20, for since that date she has had neither dynamo nor fans. Consequently it is almost impossible to live below while the vessel is at sea.

The distilling and refrigerating systems are in excellent condition. The men's head, officers' bathrooms, and water-closets, and the galley are also in good condition.

REPORT ON THE UNITED STATES NAVAL PROVING GROUND, INDIANHEAD, MARYLAND.

By H. W. JUDD, *Acting Assistant Surgeon, U. S. Navy.*

The clearing of land and the filling of low, swampy places was continued during the past year, and as a result many unhealthy conditions have been eliminated. The comparative freedom from disease of the employees and residents is due to the removal of the breeding places of mosquitoes and to the purity of the water with which the station is supplied.

Two new residences for officers are nearing completion. These are well located, and their sewerage system is complete. The general health of the personnel has been very good. But few admissions to the sick list have occurred. No accidents of particular importance are recorded.

During the month of October four cases of diphtheria developed in the family of the chief chemist. The house was quarantined and in the end thoroughly fumigated. No further cases developed.

One case of smallpox occurred in a house just outside the limits of the reservation. The house was quarantined for the usual length of time and then fumigated. No other case developed. Immediately upon the discovery of this case of smallpox all the residents and employees of the station were vaccinated.

REPORT ON THE UNITED STATES NAVAL STATION, NEW ORLEANS, LA.

By W. H. BLOCK, *Acting Assistant Surgeon, U. S. Navy.*

There are no quarters at this station for the officers on duty except for the marine officer, who is occupying a large house which was formerly a private residence. The condition of this building is bad, the floors have decayed in many places, and much of the plaster has fallen from the walls and ceilings.

The barracks consist of two large residences, with a number of small outhouses. As temporary quarters they are comfortable and sanitary, except that the men are somewhat crowded in some of the rooms. These roome are really comfortable living rooms for one or two persons, but now contain five in each room.

The water supply is entirely of rain water obtained from a large cistern, to which is attached a filter and sterilizer. The men have shower baths, and there is a reading room and a post exchange for their comfort.

The general health of the personnel has been very good.

During the summer, which in this section is very long, there abounds many varieties of mosquitoes. The variety most commonly seen is the *Culex pungens*, but there are a good number of *Anopheles* and *Stegomyia*. Every precaution has been taken for their destruction, and the protection of the men from their bites. The windows were screened and the men supplied with nets. Oil has been used and pools drained; still mosquitoes abound and always will in a section where there are cisterns and where there are gutters full of standing water from 1 to 3 feet deep. Still our annual report shows that there is but a small percentage of malarial diseases, and it is a fact that malaria does not exist to a large degree in New Orleans.

The station is still in its infancy. Many buildings are being erected, but the only one nearing completion is the construction and repair power house and machine shop. The buildings at present are small frame cottages, of which there are three. One is occupied by the construction and repair department and two by the department of yards and docks.

The building selected for a dispensary was one of a number of small buildings used as storehouses. It is a new frame building consisting of one large room about 20 feet square. This was painted, shelves were erected, electricity and water were supplied, and a stationary washstand installed. It is now well supplied with medical stores.

There is in course of construction a system of sewers for the station.

REPORT ON THE UNITED STATES NAVAL STATION, KEY WEST, FLA.

By G. R. PLUMMER, *Acting Assistant Surgeon, U. S. Navy.*

The most interesting occurence during the year was an epidemic of dengue fever. It began at the substation, Tortugas, in the summer of 1903, and was undoubtedly carried there by civilian workmen employed by companies constructing wharves, coal sheds, dredging, etc.

At Tortugas and Key West the native population possessed quite a marked immunity, which was in striking contrast to the slow but sure infection of every one connected with the marine detachment, the navy personnel, and the imported employees of the contractors. In the summer of 1904 the disease attacked those employed in the paymaster's office, then the men on the two navy tugs which made frequent trips to Tortugas, and finally spread over the yard.

The opportunity to observe the kinds of mosquitoes at Tortugas was, owing to the isolated position and size of the place, the very best. Only two kinds of mosquitoes were found, the *Stegomyia fasciata* and the *Culex pungens;* and the same was true at Key West.

During the epidemic at Tortugas and Key West no catarrhal symptoms were noticed.

In men, epistaxis was common, and in all women attacked, menstruation came on in spite of the fact that a number had menstruated a few days previously.

There was not a single case of involvement of the joints or other complication or peculiarity. Graham mentions second and third attacks during the same epidemic, but this was not my experience. The attacks began without premonition, with or without chills. There was always frontal headache, but pains in the back and limbs were not complained of until later. There were some cases which began like cholera morbus, with vomiting and diarrhea, and in one case there was marked tenderness and pain in the right iliac fossa. The faces of some were pale, and of others purplish red. The intensity and amount of the rash varied much in different individuals. There was congestion of the brain, which prevented sleep, and no matter how well the sick person would feel while in bed, if any attempt to get up were made vertigo resulted.

In no place where the disease existed did it affect a number of persons at one and the same time. At Tortugas, where 24 marines were stationed, it required thirty-nine days for all of them to become infected, although confined on a little island of 8 acres, many miles out at sea, where they ate, slept, worked, and associated under exactly the same circumstances. It required forty-nine days to infect the crews of the two navy tugs, on which the association is most intimate. During one of my trips to Tortugas on one of the tugs, I noticed that when it was necessary to close the pilot house on account of bad weather mosquitoes would come out of the binnacle. In the nets of patients were found only *Stegomyia* and *Culex pungens.*

Excepting the cases of dengue, the health of the command has been good. Several very serious accidents have happened, particularly among the civilian employees, which required two amputations and the treatment of several fractures.

The enlisted force has been removed from its old, unfit quarters and placed in a fine, airy, and commodious building, and attention has been given to the mess with a view to making it as good as possible.

REPORT ON THE U. S. S. ALLIANCE, STATION SHIP, CULEBRA, WEST INDIES.

By F. E. SELLERS, *Acting Assistant Surgeon, U. S. Navy.*

The *Alliance* was commissioned at the Boston Navy-Yard June 7, 1904, and arrived at Culebra, West Indies, on July 16, 1904.

With the idea of making her a station ship, many alterations were made. The berth deck, being no longer utilized as sleeping quarters for the crew, has been installed with storerooms, cold storage, etc.

The ventilation consists of two supply systems. Blower No. 1, located at the forward end of the auxiliary-machinery space on the starboard side, is supplied by an 18-inch pipe from a cowl on main deck, and furnishes fresh air to the forward berth deck, forward magazine, sail room, and storerooms. Blower No. 2, located at the forward end of the auxiliary-machinery space on port side, is supplied by an 18-inch pipe from cowl on main deck, and furnishes fresh air to pantry, auxiliary-machinery space, after-berth deck, general storekeeper's office, chief petty officers' space, after-magazine, dispensary, sick bay and sick bay bathroom, and water-closet. Artificial ventilation is not needed on the gun deck, ventilation to this deck being supplied by large portholes, the tropical climate allowing these to remain open all the time. The ventilation pipe leading to the general storekeeper's office being located over the evaporators, the air becomes so greatly heated that it renders the office uncomfortably warm for habitation.

The fresh-water system consists of three evaporators with a capacity of 7,000 gallons daily, togther with storage tanks having a capacity of 11,700 gallons. The storage tanks are used alternately, thereby giving ample opportunities for cleaning them at least once a month. Nothing except distilled water is used for drinking and culinary purposes.

The flushing system is an excellent one, with the exception of the water-closets, which are of the pan-closet type. The flushing of these is insufficient, both for the hopper and the soil pipe leading therefrom.

The prison is located forward on the port side of the berth deck, and consists of two cells—light and dark. The light cell is ventilated by a porthole and by holes bored through the bulkhead, while the dark is ventilated only by the latter method.

The sick bay and dispensary are all that could be asked for in a station ship of this size. They are located aft on the berth deck, in the space which was formerly the wardroom. The sick bay is excellent in arrangement, commodious and well ventilated, and contains 16 folding bunks arranged in four tiers. Each tier has four berths—two lower and two upper. As it became evident that the 16 bunks were more than adequate to accommodate the sick at the time, the starboard tier was removed so as to give space for dressing wounds and for doing minor surgery. These bunks can be reinstalled at any time. The water-closet and bath tub are located abaft the sick bay.

There has been no serious sickness on board during the six months in which the ship has been in commission. No diseases have occurred which can be attributed directly to the ship. Following the rainy season, during the latter part of September and the month of October, the ship became infested with mosquitoes, *Anopheles* and *Stegomyia*, and in about twelve or fifteen days an epidemic of malarial fever broke out on board. The admissions to the sick list became so numerous that prophylactic doses of quinine and whisky were administered morning and evening to everyone on board. Owing to the small amount of quinine in store, the preventive treatment could only be continued for a period of four or five days, but it is gratifying to relate that the method was entirely successful, as there has been only one new case since.

REPORTS ON CRUISING SHIPS.

REPORT ON THE U. S. S. OLYMPIA.

By Lucien G. Henneberger, *Medical Inspector, U. S. Navy.*

During the first quarter of the year the ship was off Colon, but enjoyed immunity from malarial fevers, which was probably due to the distance the ship lay from the land and the time of the year, it being the dry season, when malarial fevers are not so prevalent. The two destroyers, laying much nearer inshore, contracted several severe cases of remittent fever, and these were transferred for treatment to the flagship as offering better accommodations for the sick. They were subsequently returned to their respective ships, having made good recoveries.

As far as could be ascertained, there was no yellow fever at Colon or in its vicinity during the period of our sojourn, from the end of December to the latter part of March, though there were several cases of this disease in the city of Panama.

The health of the ship's company for the past year has been very good, there having been no deaths. Venereal diseases formed a large percentage of the cases treated. The ports which contributed the largest number of these were Norfolk, Va., Pensacola, Fla., Gibraltar, and Barbados, at each of which places these affections seem to be unusually prevalent.

The defects in the sponsons of the 6-pounder guns on the berth deck, which leaked, making the decks wet at sea, have been remedied in a great degree, and the decks are now comparatively dry even in rough weather.

There has always been great need of an operating room on board the *Olympia*. The sick bay is too small for ordinary purposes, having a capacity of only six berths, and when the operating table is spread there is hardly room enough to move about. Ample space for this purpose exists in the middle berth-deck section, forward of and adjoining the dispensary, which is at present occupied by the petty officers' mess table. The length of this space to the forward 6-pounder gun sponson is 21 feet; it gradually narrows toward the bow of the ship. Thus a room 9 feet wide by 10 or 11 in length could be built which would make a very good operating room, and a door could be cut through the bulkhead into the dispensary.

REPORT ON THE U. S. S. KEARSARGE.

By S. H. Dickson, *Medical Inspector, U. S. Navy.*

From January 1 to the middle of February the *Kearsarge* remained at Culebra, West Indies, for combined fleet maneuvers and drills, sailing thence for Guantanamo Bay, where a fortnight was spent. Pensacola was reached March 14 and the ship remained there in active work on the target range, followed by a short period of relaxation until May 5, when a return was made to Guantanamo. On May 15 the fleet sailed for the Mediterranean cruise, and stopping at Horta, Azores Islands, on May 26 for coal, again proceeded and anchored off Lisbon on the 1st of June. On the 18th the fleet sailed for Gibraltar, and having remained there two days, visited in succession Piræus, Corfu, Trieste, Fiume, dividing a month between these ports, and returning to Gibraltar on August 8, leaving on the 12th, and on the 29th of August anchored off Newport, R. I. There was target practice off No Man's Land from September 2 to 17, and on the 22d the ship was at the navy-yard, New York, for necessary repairs, after the completion of which she sailed, on December 28, for Hampton Roads, arriving there the following day and remaining to the close of the year.

Approximately 16,000 miles have been covered by this ship during the period under consideration, not including those in the runs over target ranges and in maneuvers, which would add a thousand or two to the score. For more than a third of the year it was a time of great activity and strenuous work on the part of the personnel, and when it is remembered that the climatic conditions to which a complement of 716 was exposed, those of a continuous high temperature in the West Indies, the Gulf of Mexico, and in the Mediterranean, in a hot battle ship, it is a matter of satisfaction that so fair a standard of health was maintained. Naturally the officers and men were much run down, and the loss of tone and vitality was very noticeable in their appearance. So long a time spent in such relaxing climates unfitted them for exposure to the severe weather encountered at the New York Navy-Yard in the latter part of November and December, and more than the usual number of diseases of the respiratory tract developed. The open condition of a battle ship under repairs in the middle of winter at a northern yard adds to the danger of contracting these affections, and it is unfortunate that such changes and alterations are not undertaken at a milder season of the year. From a sanitary point of view it is injudicious and undesirable to send battle ships to visit the Mediterranean ports and those of the Adriatic in midsummer, under ordinary peace conditions. The temperature is very high, the rays of the sun are burning, the season almost rainless, leading to water contamination, while clouds of dust spread and disseminate multitudes of morbific germs.

The sanitary condition of the ship itself has been most satisfactory, regular and rigid inspections have been made, and the utmost cleanliness maintained. The greatest care has been exercised in the selection and preparation of articles of food for her large complement, with excellent results.

Not less than 50 per cent of all cases of venereal disease, with sequels of bubo, etc., were directly traceable to Ponce, P. R., where liberty was granted during a Christmas visit of four days in 1904, and it is recommended that the port be given a wide berth until there is some assurance of diminished danger of infection of our men. The good fortune which attended the ship last year in the entire absence of typhoid fever from the list of diseases was not repeated in 1904, as 13 cases occurred. Of these, 1 was infected at Pensacola, 8 at Piraeus, 3 at Trieste, and 1 in New York. Of the 8, 5 officers and 1 wardroom attendant were presumably exposed to the same source of infection, in all probability lettuce, which had been contaminated with the disease germ during cultivation by irrigation. Two enlisted men contracted the disease probably by drinking the water in Athens. All were sent to the Hospital Santa Maria Maddalena in Trieste, where everything possible was done for their comfort. To facilitate their recovery medical officers from the fleet and a special nurse were detailed in addition to the hospital force, but despite everything two cases terminated fatally.

All of the others referred to recovered, 2 in the Colonial Hospital at Gibraltar, 1 in the United States naval hospital in Newport, and 1 in the United States naval hospital, Brooklyn. A thorough and searching disinfection of the quarters of the officers and of the sick bay immediately followed the removal of the patients ashore. No other disease of an infectious or contagious nature appeared on board during the year. A few bad cases of malarial fever broke out among the men while the ship lay at Guantanamo, and others during the passage across the Atlantic and in Lisbon. The presence of *Anopheles* was suspected, and a careful search was made for the insects and their breeding places. These were finally discovered at the very bottom of the hammock nettings, under the gratings, where some rain water had been accumulating. Several were captured, the pools dried and painted, and no more cases occurred. The *Kearsarge* has a very complete and well-equipped operating room. It is situated just abaft the sick bay, into which it opens by means of a wide steel sliding door, and measures 10 by 7 feet, with an 8-foot height. The deck is laid in block tile, impervious to water, and is easy to keep clean; while the lighting and ventilation are both excellent. The compartment is of course very small, but sufficient to contain a navy standard counterbalanced operating table; a cabinet of the very best instruments for surgical work; a shelf stand furnished with porcelain articles for dressing wounds, instrument trays, jars of glass and porcelain for sterilized dressings, etc., admirably chosen for their purposes and well secured from breakage at sea; 3 irrigating bottles with attachments complete. There are, besides, two drop porcelain hand basins, soap, and towel rack. The entire outfit is made of the best materials, and evidences the liberal and progressive policy of the Bureau.

In the men's water-closet the old individual bowls, with their complicated and cumbersome valves, were removed and replaced by long, shallow, and smooth metal troughs, which are constantly flushed and kept clean. The ventilation there is still defective, especially at sea, for in bad weather both the air intakes on the forecastle have to be closed. In port, with hatches and air ports open, the ventilation is sufficient.

Regular and systematic instruction in first aid, in resuscitation of the apparently drowned, and in the transportation of the wounded has been given, with practical illustrations, whenever the other exercises of the ship would permit. In this connection a word in commendation of the apron stretcher devised by Surg. G. A. Lung, U. S. Navy, would seem in place, viz: It has impressed me very favorably as being of great service in handling the sick and wounded under the conditions met with here. It has the merits of cheapness, lightness, and quick adaptation. The occupant has a sense of perfect security in being passed in and out of hatches and up and down ladders, while immobility of the body and the limbs is well maintained. Its simplicity of construction also recommends it.

The necessity of having hospital ships as integral units in our fleets has been strongly emphasized. The importance of such an auxiliary can not be overestimated, and has received recognition in the navies of other countries.

It might be well to mention two special occasions during the year when the presence of a hospital ship among the vessels of the United States North Atlantic Fleet would have been of the greatest value in increasing its efficiency, viz: During the epidemic of measles at Guantanamo last spring, and to the outbreak of typhoid fever, with cases on this ship and others, while cruising in the Mediterranean during the summer. In this latter instance it was difficult to have the officers and men suffering from an infectious disease admitted to a hospital; obstacles and prejudices had to be overcome, and only by insistence was success attained.

One of the matters which constantly gives much concern is the transportation of the sick from a fleet as large as that which is mobilized at Culebra each winter to the naval hospital at San Juan, or from Guantanamo, another base, to Pensacola. The various tenders, tugs, or torpedo boats are not adapted to such service; they have no accommodations for taking any but the roughest care of patients, and, should such cases be of an infectious or contagious nature, well-founded objections naturally arise to complicate matters. The presence of a hospital ship would solve all of these problems.

REPORT ON THE U. S. S. NEW YORK.

By D. O. LEWIS, *Medical Inspector, U. S. Navy.*

This vessel, which has been acting as flagship of the Pacific Squadron during the year, arrived at Panama January 8, where, owing to the existence of several cases of yellow fever on shore, no general liberty was granted to the crew.

On March 8 the *New York*, accompanied by the other vessels of the squadron, reached Callao, Peru. Upon arrival it was learned that bubonic plague had appeared during 1903. The first cases, about 10 in number, occurred at the Santa Rosa flouring mills, where many dead and infected rats had been found previous to the outbreak among the employees. The mills were immediately closed for a period of several weeks, and vigorous efforts were made to destroy all of the rats. From Callao, following the line of the railroad, the scourge spread to Lima, breaking out at two of the intermediate stations in its progress to that city. On March 21, 1904, several cases appeared in a well-known cafe in Lima, the proprietor and several waiters being among the victims. As the cafe occupies a central location in the most frequented part of the town, and is a favorite resort for both officers and men, it was deemed necessary to stop liberty. Before leaving Peru the alcalde of Lima kindly furnished the ships with a liberal supply of the antipest serum, prepared at the Pasteur Institute in Paris.

The health authorities of Lima are fully alive to the importance of the destruction of the mosquito and are taking active measures to that end. Where it has been found impossible to completely drain certain tracts, a systematic crusade has been made against the larvæ.

On May 23, while at Honolulu, a draft of men was transferred from the

U. S. S. *Mohican* to this ship. Owing to the prevalence of mumps on board the *Mohican* the entire draft of men, together with their effects, were thoroughly disinfected at the quarantine station at Honolulu. Nowithstanding this, two cases of mumps appeared on board the *New York* on May 30. These were followed by 7 more cases, 9 in all, the last case occuring July 23.

During the summer the ship visited Kyska Harbor, Bremerton, Magdalena Bay, and San Francisco.

Arriving at Panama on November 17, it was found that while the health of the place was fairly good, sporadic cases of yellow fever were occurring at intervals, and that the focus of infection seemed to be the habitations in the Plaza de Santa Ana. It was therefore recommended that no general liberty be granted and that officers should return to the ships at sundown.

The work of sanitation is making rapid strides at Panama. The hospital formerly belonging to the French Canal Company has now passed into the hands of the Canal Commission and is rapidly undergoing renovation and improvement. The hospital is built on the pavilion plan, and consists of 14 wards, each made in two sections, connected by a covered passageway.

Each half ward has a capacity of 24 beds. At present the water for the hospital is obtained from wells on the premises, which has to be pumped to a reservoir on the hill above the hospital. There are no sewers, and the bucket method of disposal of excreta is at present in use, but this will be replaced by a system of sewers.

There is at present under construction a large reservoir near the hospital, which is to supply the town of Panama with water. When complete it is estimated that each inhabitant will have about 60 gallons per diem. This water will be brought in a 16-inch pipe a distance of about 10 miles from a collecting dam, whose height will be about 100 feet above the reservoir mentioned. At Taboga Island there is a large sanitarium built by the French and now undergoing renovation. When complete it will serve as an admirable resort for people broken down in health by this climate. Taboga has always been considered by the residents of Panama as possessing a more salubrious climate than that of the Isthmus proper, owing probably to the fact that mosquitoes are not so numerous on the island.

During the year the health of the ship's company has been good, and the food and water abundant and of excellent quality.

REPORT ON THE U. S. S. BROOKLYN.

By Frank Anderson, *Medical Inspector, U. S. Navy.*

During 1904 the *Brooklyn* has been successively employed as flagship of the European and South Atlantic squadrons.

The health of the ship's company has been good, the proportion of men habitually coming to sick call being small. During the summer 7 cases of typhoid fever occurred, the first of which was probably contracted at Tangier, Morocco, and was transferred to the civil hospital, Gibraltar. The other 6 made successful recoveries without transfer, notwithstanding we were at sea in the Tropics most of the time, were often without ice, and were dependent for nourishment upon canned goods and such articles of food as the ship's stores contained. During the illness of these men the members of the hospital corps rendered very efficient service and were extremely attentive to their duties. Since this outbreak of typhoid one additional severe case has occurred and was transferred to the British hospital at Montevideo.

While making the trip from Montevideo, Uruguay, to Bahia Blanca, Argentina, a case of varioloid developed in a man who had not been ashore in several months. It is therefore reasonable to infer that infection was conveyed on board the ship. Upon arriving at Bahia Blanca this case was removed to the naval hospital at the Puerto Militar and there treated until recovery was complete. He has since rejoined the ship. I feel it incumbent upon me to express my appreciation of the great courtesy shown us on this occasion by Doctor Cornero of the Argentine navy and director of the naval hospital. In addition, Doctor Cornero furnished me with a supply of vaccine virus from the Government farm, sufficient to complete the vaccination of the crew.

Smallpox has been prevalent during the past year on the South American coast, and at Rio de Janeiro it constituted an extensive and fatal epidemic. No more cases, however, have developed on the *Brooklyn*.

Two deaths have occurred; one was a fatal case of appendicitis, transferred to and operated upon at the civil hospital at Alexandria, Egypt; the other was a case of accidental drowning at Montevideo, Uruguay. There have been but two accidents of a very serious nature among the crew of the *Brooklyn*. In the one instance a man fell into the dry dock at Genoa, Italy, receiving a severe concussion of the brain. In the other instance a man's arm was so severely lacerated that amputation in the upper third was necessary.

There have been, in the *Brooklyn* during the past year, no changes of importance from a sanitary standpoint. In several previous annual reports I have urged the importance of having the laundry work of ships done on board. Smallpox, itch, and various other skin diseases are extremely likely to be introduced among a ship's company by clothes washed on shore.

The sick bay is unchanged and while not modern in its equipment it has met the needs of the ship during the past year. It is located on the berth deck in the extreme bow of the ship. It is deemed a mistake to place the sick bay on the berth deck at all, especially in the bow. At sea the air ports of the sick bay, as at present located, are the first to be closed, since ports at the extreme bow must be kept closed on account of the spray. Another objection to the berth-deck sick bay is the extra ladder down which the patients must be carried in order to reach it.

As part of the hospital department there should be an isolation ward for infectious cases,and this should be in direct communication with the sterilizing plant, so that everything could be thoroughly sterilized before being removed from this ward to another part of the ship.

In the early part of my naval career I once visited Free Town, Sierra Leone. It was then still known as "the white man's grave." In my recent visit in July last I found it transformed into a place where the white man, with ordinary care, can live with comfort and safety, and as a consequence the town has greatly increased in size and in commercial importance. Wholesome water from the mountains has been brought into the settlement so that now every native can procure from the street hydrant a water that is pure and safe. Hence a great diminution in the number of cases of dysentery. Extensive vaccination has so far overcome the smallpox that the pitted face is now the exception in the rising generation. In the local hospital careful investigations with relation to the mosquito are being carried on and measures are being taken to exterminate this pest.

At St. Paul de Loanda the Maria Pia Hospital, which is located on an elevation back of the settlement, is the most imposing and conspicuous building in the town. This is a large military hospital, commenced in 1883, and provides accommodation for civil as well as military patients, both pay and charity. It contains over 200 beds. The private rooms and wards are large, airy, and well lighted, and the whole establishment maintained in a state of scrupulous cleanliness. The facilities for operating in accordance with the demands of aseptic surgery are complete in every respect. It is also equipped with an extensive bacteriological laboratory where investigations are being made into the nature of the "sleeping sickness" by a board of experts sent out from Portugal. At the time of my visit there were 12 cases under observation. The disease exists among the natives inhabiting the district of the interior back of Loanda, and seems to be on the increase. Government inspectors are on the watch for it and whenever a case is discovered it is at once brought to this hospital and there remains until the end. So far as I am aware only one case has been observed in this Province in a person of other than pure negro blood.

At the Puerto Militar of Bahia Blanca, Argentine Republic, a naval station has recently been established. It was here that the *Brooklyn* was docked. The sanitary and toilet arrangements in connection with this dock are worthy of special mention. They were erected under the supervision of the medical director of the station and are superior to any seen at home or abroad. The outhouse for officers is amply lighted by electricity, is tiled throughout, and, in addition to the usual water-closets and urinals, contains several shower baths.

At this station is also a naval hospital, modern in every respect, which when completed will accommodate over 100 patients. At present there are three buildings, one for administrative purposes, cooking, and dispensing, and the other two, built on the pavilion plan, for the accommodaiton of patients. A third pavilion is about to be erected. There are separate wards for surgical and medical cases, private rooms for sick officers, and an isolation ward for infectious diseases. There are two operating rooms, one for aseptic operations and the other for infected cases. The surgical outfit and sterilizing plant are equal to any in our first-class hospitals at home. A bacteriological laboratory will be one of the features. Sanitary conditions throughout the Argentine Republic are good and no epidemic at present prevails. There has recently been effected a sanitary treaty between the Argentine Republic, Uruguay, and Brazil based upon the decisions and recommendations of the International Sanitary Conference which met in Paris in October, 1903.

In Rio de Janeiro a very extensive and fatal epidemic of smallpox has raged during the past year, but at the time of our arrival it was rapidly subsiding. The Government supplies an excellent quality of vaccine and uses it as extensively as the people will permit. An endeavor has been made to authorize by law compulsory vaccination whenever in the opinion of the authorities such action may seem advisable, but this law has met with such strenuous opposition that it is considered doubtful as to whether it can ever be enforced.

The Brazilian health authorities are energetic in carrying out sanitary measures and reforms, and much has already been accomplished toward exterminating yellow fever in Rio. This year, up to the time of our visit to that port, the cases were so few as scarcely to merit notice, and there is good reason to expect that this will eventually become a healthful city. The experience of Santos shows what can be done. A few years ago it was one of the most deadly ports in the Western Hemisphere. Now yellow fever does not exist at all, and it is probably as healthful as any seaport of a similar latitude in the world.

At Bahia we found some cases of plague. Through the courtesy of our consul, Doctor Furniss, who has devoted himself particularly to bacteriology, some of the medical officers obtained permission to visit the Bahia plague hospital.

The question of attention to the teeth of the enlisted men of the Navy is becoming more and more pressing every year, and there are few matters coming within the province of the medical officer that may cause him more embarrassment. The employment of competent dentists is one of the most urgent needs of the service in connection with the health of the personnel.

In the past thirty years there has been a marked decrease in the drink habit. In any ship's company there will always be found some men who will drink to excess when on liberty, when it is granted only at long intervals, but admissions to the sick list for alcoholism are rare.

REPORT ON THE U. S. S. TEXAS.

By J. C. Byrnes, *Surgeon, U. S. Navy.*

During the limited time the vessel was undergoing repairs at the navy-yard, New York, action was taken upon many of the recommendations made in the sanitary report for the year 1093, including changes as follows:

A door was cut through bulkhead No. 27, forward in petty officers' quarters, which has now free communication with the berth deck, fore and aft, by means of the central passages. The cofferdams were removed from the passageway between the engine rooms, likewise those surrounding a hatch in this space leading to the after handling room. The cofferdams in the passage ways under the redoubts and those surrounding hatches leading to the lower passageway connecting fore and aft handling rooms were also removed. This became necessary in order to make available bulkhead space for opening the doors leading into the uptakes, which are now used as drying rooms by the engineer's force.

An air space has been made above the two forward boilers by fitting a galvanized-iron covering to the lower side of the deck beams, but this has not given the results expected, as the steel deck in the passages under the redoubts is still very hot when the boilers are in use. It is believed that the deck itself in this part of the ship should be covered with a nonconducting material able to resist the prolonged action of heat, oil, and water.

In place of two 32-kilowatt dynamos formerly in use, there were installed four 24-kilowattt dynamos giving an increase of capacity of 50 per cent. It was quite impossible to rely upon the continued working power of the old machines, and several times the ship was in darkness for a greater or less period. With the division of power into four units, as is now the case, it is practically impossible for the ship ever to be in darkness from disabled dynamos. Besides, the increase in units is sufficient to allow some increase in the ventilation of the ship, the intention being to install four 42-inch blowers at different points and to remove old blowers having steam as motive power, in this way not only improving the ventilation but reducing the temperature in what is now the hottest part of the ship aside from the fire rooms. This work is to be done upon next arrival at a navy-yard for repairs.

A new range, a new bake oven, navy standard, and a new 60-gallon steam jacket kettle were installed for the use of the crew, giving increased facilities and better results in the preparation of food. The new range as well as the new bake oven are far superior to those formerly in use, and permit the easy preparation of an increased quantity and a greater variety of food.

The new sick quarters, which were practically completed and taken possession of by the medical department on January 1, 1905, are situated on the port side of the berth deck forward, just abaft the chain locker, comprising a little over half of compartment A 115.

The space is divided into sick bay, dispensary, operating room, bathroom, and storeroom.

The operating room occupies the space between the forward thwartship bulkhead and the hatch leading to the deck below. It is rather small for the purpose, but is as large as the limited amount of space would allow. The interior is finished in white enamel, the deck is tiled, and the fittings consist of a porcelain basin with hot and cold water attachment, shelf stand and fittings, navy pattern irrigating jars, operating table, and instrument stand of glass and nickel-plated metal. The space is ventilated by means of a window opening into the crew's space on the starboard side of the compartment and by the passage into the sick bay. While at sea the natural ventilation is augmented by means of electric fans. Light is entirely artificial.

A storeroom is located just abaft the hatch. It is furnished with lockers for linen and bedding, and shelves above for medical supplies. A small triangular space between the lucky bag and after thwartship bulkhead was converted into a locker and utilized as an instrument and surgical supply closet.

The dispensary, though small, is very conveniently fitted with stationary metal dispensary racks, containing the navy standard dispensary bottles. A counter with plate-glass top, beneath which are drawers for various purposes, occupies the space beneath the racks. A transom is situated outboard, forward and aft. Above the transom is a large locker for poisonous drugs and alcohol, and next to the inboard bulkhead, opposite the bottle racks, is another large locker for medical supplies. The deck of the dispensary is covered with linoleum. Ventilation is carried on through a porthole, a ventilating pipe, and a door leading into the sick bay. An electric fan assists the natural ventilation while at sea.

The bathroom is situated in the opposite outboard corner. The deck is tiled. It is fitted with porcelain washstand and bath tub, both furnished with hot and cold water, and a water-closet. A hinged shelf has been placed over the bath tub, and is kept down when the latter is not in use. Back of this shelf is a rack for test tubes, chemical reagents, etc. All chemical work, such as examination of water and urine, preparation of stains, etc., is done here. The compartment is ventilated by a shaft, a port, and a door leading into the sick bay. By closing the port and door the room can be utilized as a disinfecting chamber, using the Schering formalin lamps.

The sick bay proper is large, well ventilated, and lighted. It contains 8 bunks, arranged in pairs, one above the other, 4 being placed parallel to inboard fore and aft bulkhead, end to end, and 4 in the space between the bathroom and the door leading out of the sick bay into the after compartment. These bunks, which are detachable, were designed by Naval Constructor Nutting, U. S. Navy, and are admirably adapted for the purpose intended. The frame is made of hollow metal tubing, which incloses the wire spring. The side, head, and foot pieces are so arranged that they can be folded in or out while the bunks are being prepared or when stored. When not in use both bunks and brackets are easily taken down, the sides of bunks folded in, and everything stored below. The whole arrangement is exceedingly simple, the material light and easily cleaned, and the ease with which the bunks can be removed and replaced renders the arrangement very useful.

In the angle between the dispensary and the side of the ship is placed a large combination typewriter desk, and on the inner side of this is the microscope stand, with plate-glass top, employed exclusively for bacteriological and microscopical work. By its use the necessity of storing the microscope and case of accessories and keeping staining solutions, etc., in the dispensary is obviated. A portable instrument and dressing table, chairs, etc., complete the sick bay fittings.

Beneath the sick bay is a large storeroom, with shelves and lockers enough to accommodate all medical and surgical stores, racks for holding mattresses and bunks, space for field hospital outfit, and other articles not needed for immediate use.

The general mess system continues to work most satisfactorily. Frequent inspections of the food discloses it to be of excellent quality in its selection and of sufficient variety. The canteen is likewise working most satisfactorily, and meets the needful requirements.

REPORT ON THE U. S. S. NEWARK.

By A. C. H. Russell, *Surgeon, U. S. Navy.*

While at Colon, Panama, 49 cases of catarrhus epidemicus occurred between April 3 and 15, inclusive. The cases were all mild. In many of them there was some acute gastro-intestinal irritation. In one case, which did not recover promptly, secondary syphilis existed. The point of interest in the epidemic is the source of infection. The ship reached Colon from Pensacola Saturday, April 2. As there was much rain the hatches were covered with hatch hoods. The decks were scrubbed. The air of the berth deck was very hot, moist, and confined. The previous Tuesday the mail had arrived from New York, where influenza was prevailing. As there had been little communication with the shore, and as none of those who went ashore contracted the disease, it is thought that the infection was brought to the ship by the mail. The disease was confined to the crew. Two cases of febris enterica acquired at Pensacola were treated on board ship at Colon, recovered, and were discharged to duty. May 9 a warrant officer's steward was taken with febris enterica. He had been ashore on duty in Colon. From April 28 to May 5 he had been in bed with an abcess of the leg, but on the opposite side of the sick bay was a patient convalescent from typhoid fever. It is not known that there was any contact between the men, and it is thought that the disease was contracted in Colon. May 15 two coal passers were taken with febris enterica. As far as can be learned neither of them had been ashore since March 17, at Pensacola. Neither of these men had been in the sick bay, and they belonged to different messes.

An apprentice, first class, was admitted May 21, and a seaman, May 23, with febris enterica. Both had been to the landing in Colon in the running boats. They belonged to the same mess. They had no contact with the typhoid patients in the sick bay. In all these cases there were rose spots, a positive diazo reaction and characteristic symptoms, though the temperature charts were not typical. Repeated blood examinations excluded malaria. The Widal test was, unfortunately, not available. The second case was kept under a mosquito net and his attendants were constantly urged to protect him and his discharges from flies. No one was allowed to visit him. Cases Nos. 3, 6, and 7 had opportunities to contract the disease ashore. The fact that cases No. 4 and 5 had not been ashore for nearly two months before they were taken sick makes it necessary to conclude that the infection was conveyed to them in some manner on board ship. Three possible sources of infection were flies on board ship or from shore, cockroaches, and fruit, the peel of which had been infected ashore. A sample of water from the scuttle butt and a number of cockroaches from different parts of the ship were examined at the Naval Museum of Hygiene and Medical School, Washington. The water was found to be harmless. Cultures from the roaches of the sick bay showed highly motile bacilli, closely resembling the bacillus typhosus, but which failed to agglutinate with the Widal test. No fresh milk, no waters bottled in Colon, no vegetables to be eaten raw were allowed on board. Although it is impossible to determine in what manner cases Nos. 4 and 5 were infected, it is believed that it was through the agency of flies or cockroaches.

The following sanitary measures have been carried out as matters of routine: Washing the berth deck once a week with bichloride of mercury, boiling the mess gear weekly, keeping the cups at the scuttle butt in a solution of formalin, soaking the swabs used in the heads in a barrel of bichloride solution, sprinkling chloride of lime under the urinals and water-closets, and putting sulphate of iron in the urinals as a deodorizer. Drainpipes have been placed under the urinals to conduct the drippings overboard and thus prevent the urine from running back under the water-closet seats and contaminating the tiling. This is a great sanitary improvement and an arrangement which should have been in the head from the beginning.

Mosquitoes were caught on board at many ports. Among the number one *Stegomyia fasciata*, from the outer anchorage, Culebra, was found; the others were varieties of *Culex*.

REPORT ON THE U. S. S. WISCONSIN.

By Clement Biddle, *Surgeon, U. S. Navy*.

All water used is distilled aboard, and is of excellent quality. The tanks are cemented, and cleaned as often as is necessary. The allowance is 3½ gallons per man, daily. The capacity of the tanks is 75,992 gallons.

The artificial ventilation, which is now ample in every way, is by exhaust and supply. Every part of the ship except the after part in heavy weather at sea, is well ventilated. The new motors, just placed in operation, will increase the air delivery 20 per cent. The exhaust louvres are installed in the officers' and the crew's water-closets, and in the bathrooms. Numerous electric fans are distributed throughout the ship.

The quantity of food is ample and the variety sufficient, but in cooking there is room for much improvement.

The heads are in a good sanitary condition. There is a constant flow of water through the troughs, which keeps them clean. An additional connection is now being fitted from the fire main. The heads are disinfected at various periods.

The double bottoms are invariably found, at weekly inspections, to be clean and absolutely dry.

The quarters of the admiral and captain are comfortable and well ventilated, though small.

The space reserved for the wardroom, though insufficient, is well adapted, by reason of ample light and ventilation, for the purpose intended, the rooms opening into the after-torpedo compartment excepted. Attention is called to the other officers' quarters which are distributed around the engine compartment on either side. These are always overheated, and in the Tropics unbearably so; they are, likewise, dark and have no air-port ventilation. For the most part their occupants have to sleep on deck on account of the overheated state of their rooms.

No cases of heat exhustion have occurred, though the temperature of the fireroom, dynamo room, and other steam-machinery compartments, runs up to 120° F. This speaks well for the ventilation of these parts.

As a prophylactic measure against the spread of certain diseases, notably pulmonary consumption, pneumonia, mumps, syphilis, etc., the daily disinfection of the spit kits and scuttle-butt cups has been established.

At target practice, so far, no injuries to the auditory apparatus of either officers or crew have been reported by the medical officers of the fleet, the *Helena* excepted, despite diligent inquiry. To a certain extent in this ship the gun-blast sounds were lessened by inserting cotton plugs in the auditory meatus of the men most exposed.

There are two Allen dense-air ice machines which make, on an average, 100 pounds of ice daily, and in addition cool the water in the scuttle butt and keep the temperature in the cold storage at about 32° F. The sick bay receives a portion of this ice.

In the medical department there are 3 ample compartments and a dispensary, viz: One hospital space entirely separate, with 11 standing berths; an operating room, and a bathroom with water-closet. The hospital or standing-berth compartment is unusually well adapted for the care of the sick.

There are 2 brigs, 1 on the berth deck and 1 on the port side of the splinter deck, which are sufficiently well ventilated and lighted, though the berth-deck cell might have been better provided with fresh air by boring some additional holes over the door of each cell.

There being much work for a dentist aboard ship, a dental surgeon was engaged, an American, who visited the ship at least twice weekly while at Cavite, and worked in the sick bay. His fees were more reasonable than for similar work done ashore. By having the dentist visit the ship the granting of liberty to men who apply for it on the score of "want to see the dentist" is entirely done away with; at the same time the teeth of the crew are kept in good condition.

The athletic members of the crew are given an opportunity for exercise, largely by base ball matches and, to a certain extent, by boat racing and boxing. These games afford enough physical exercise for those taking part in them to keep up an excellent state of health, while the match games attract large crowds and thus keep the men out of questionable resorts.

REPORT ON THE U. S. S. COLUMBIA.

By E. H. MARSTELLER, *Surgeon, U. S. Navy.*

The health of the officers and crew and the sanitary condition of the ship throughout the year has been good. Cases of infectious disease were few and there was no epidemic.

In the sick bay one port, 12 inches in diameter, was added, by piercing the side of the ship forward, furnishing light and ventilation to a dark space where two bunks are located. In the bathroom the old fixtures, comprising a bath tub, wash sink, and water-closet, were replaced by new and modern ones.

The sick bay is small, and if furnished with folding bunks would have much more space for use as an operating and examining room. The department would be greatly improved by the addition of one room, conveniently located near the present sick bay and dispensary, to be used as an office, consultation room, examining room, and laboratory combined, thereby giving up the sick bay with 10 beds to its legitimate purpose, as only 6 beds can now be used since it became necessary to store 2 bunks to make space for the operating table, and 2 more for office desk room.

Some important improvements in the ship have been made by taking out woodwork and replacing it with metal and tiling, especially about the heads for the crew, and the water-closets and bathrooms for officers. Tiling was also placed in the decks about the scuttle butt, ice machines, bakery, etc. The scuttle butt was removed from the gun deck to the deck above and close to the ice machines, which was an improvement.

REPORT ON THE U. S. S. YANKEE.

By J. D. GATEWOOD, *Surgeon, U. S. Navy.*

During the year 1904 a number of changes were made in this vessel, improving the general sanitary condition, adding to the comfort of the crew, and increasing the facilities for the care of the sick.

The blowers that were installed for temporary use at the time the ship was commissioned have been replaced by those designed for the vessel. With an increase in the volume of air supplied there has been considerable improvement in the ventilation.

In the evaporator room a ventilator has been installed, the two Riley evaporators used for feed water have been removed, and an evaporator of recent design placed in the space made by the removal of the circulating and feed pumps to the site of the old evaporators, and a double door has been made in the starboard bulkhead. These changes have greatly diminished the heat to which the men operating the flushing and distilling systems were subjected, and in creating a movement of air from the starboard passage at the engine and fireroom trunk have also improved the ventilation in that part of the ship. The substitution of a new evaporator for two that, owing to leaks, could not be depended upon for drinking water, has increased the supply under ordinary conditions to 7,000 gallons a day.

The height of the forward fireroom ventilators has been increased 4½ feet, which has greatly improved the ventilation in that part of the ship, as the steam launches in their cradles limited the access of air

A vertical Blake pump has been installed at the forward bulkhead on the port side of the engine room for use in connection with the bilge manifold system. This has removed the chief difficulty in getting bilge water out of that part of the ship, but owing to the flatness of the bilges in that locality additional improvement could be made by moving the center after-fireroom suction from the port side to a place as nearly amidships as the longitudinal allows.

The two 1-ton ice machines have been replaced by two 2-ton machines, and considerable improvement has been made in the cold-storage spaces by constructing a vestibule or handling room and installing a manifold system of supply and return with control of each room without entrance. The plant is now satisfactory.

The floor of the galley space has been tiled and satisfactory swill chutes have been installed.

In the sick quarters the following changes have been made: The noise from the chain pipes has been reduced by lining them with wood; the steam pipes to the anchor engine have been removed from the sick bay and medical storeroom, and now lead through the gun deck; the sides of the sick bay have been sheathed, and new bunks, a stationary basin with hot and cold water, a venereal sink, and an independent supply blower have been installed; a gravity closet has been placed in the toilet room, the floor of which has been tiled; a larger radiator and a better faucet for the stationary basin have been placed in the dispensary, and in the operating room the floor has been tiled, a stationary basin with water supply installed, and connection made with the ventilating system of the forward berth deck. The after-wheelhouse has been arranged for the segregation of cases of contagious disease by putting in hammock hooks and installing a radiator. All these improvements were very much needed, as they have not only added greatly to the comfort of the sick and the facilities for their care, but have also limited the spread of epidemic disease on board.

While much was done during the year to improve this vessel from a sanitary point of view, there are other changes of importance that should be made at the first opportunity. The abandoned tiller-rope well, on the starboard side of the gun deck forward of the wardroom, was removed and some of the defective planking renewed, but a considerable portion of that deck is still in very bad condition, showing many nail holes and much rotten wood, especially in the passages about the engine and fireroom trunk. Such a deck can not be kept clean or dry, and does not take shellac well, soon exhausting the supply. The soil pipe of the water-closet in the executive officer's quarters (in the middle deck house) discharges into a scupper pipe leading from the main deck. The pipe has been diverted from its former use, but the place of discharge remains near the port gangway well above the water line. A soil pipe should be provided to discharge at the water line. The radiators in the deck houses have not sufficient area to properly heat the rooms in cold weather. Larger heaters should be installed. The radiators in the inboard brigs should be removed to the outboard brigs, in which they are needed in cold weather, owing to the proximity of the ship's sides. The ventilation of the inboard brigs should be improved.

The lighting of the wardroom and its ventilation are very unsatisfactory in wet weather or whenever at sea the ports have to be closed. The ship has three dynamos and is well wired, but owing to the character of the fixtures (horizontal bulbs and flattened hemispherical globes) and the height of the deck the light is confusing and detrimental to the eyes, especially when any attempt is made to read by it in the wardroom country where it is customary for officers to assemble around the after-wardroom table. It is thought that there would be much improvement if the bulbs were placed vertically and provided with spherical globes. Their number might be reduced sufficiently to make it practicable to install a suitable cluster for each table without increasing the load on the dynamos.

The ventilation in that part of the ship is fairly good when the ports are open, but under the circumstances mentioned the condition is not favorable to the maintenance of good health. Improvement could be made either by the installation of artificial ventilation, the blowers to be used as conditions require them, or by making a small trunk hatch in the after-wardroom to open on top of the deck house and to pass through the adjacent angles of four deck rooms, or by both.

During the year there were 14 cases of measles, 6 of typhoid, and 85 of tonsilitis, almost all of the follicular type.

In the first quarter a machinist, second class, while on duty in the steam launch, was shot through the head at the landing in San Domingo City. One other death occurred during the year, a landsman for training having been drowned in the attempt to swim the back channel at the League Island yard.

On December 22 the ship left Colon with 375 officers and men of the Marine

Corps, who were returning home after a year's service on the Isthmus of Panama. During the eleven days they were on board there were 13 cases of malarial fever—6 of intermittent type, and 7 of remittent. In the transportation of this battalion and also in that of its relief, the men were unprovided with mattresses or cots. Each had a blanket and slept on the deck.

REPORT ON THE U. S. S. BALTIMORE.

By O. DIEHL, *Surgeon, U. S. Navy.*

No material changes have been made in the internal arrangements of the ship, and the sanitary conditions are unchanged.

The Sturtevant electric blowers are at present not in use, and the quarters and living spaces below deck are now entirely dependent upon natural ventilation, which, especially at sea, is very inadequate. It is the intention to repair and put the blowers into use as soon as possible, and it has been recommended that they be arranged to supply instead of exhaust.

The sick bay is constantly used as a passageway to storerooms and paint locker, and the uninclosed anchor chains pass through it, which conditions render it impossible to maintain proper cleanliness and quietude.

Reference to the statistical reports for the year shows nothing unusual in the way of disease for a ship of this class, which has been actively engaged in cruising, generally under warm and debilitating weather conditions.

The relative preponderance of cases of sickness was of venereal origin. Against this class of diseases, which make up the largest percentage of sick, no precautions are usually taken. The only plan remaining is to accept and recognize the existence and evils of prostitution and to meet them squarely by providing the men in the service with whatever remedial measures may be in existence or may in future be invented.

My attention was recently called to the measures taken in the Imperial German Navy. A report on this scheme was made, together with a recommendation that it be adopted in our service.

A description of the "outfit" is herewith given, viz:

(*a*) A paper box, 1½ inches square and ½ inch deep, containing three tubes (named "viro-tube") wrapped in cotton. These tubes are compressible, with a nozzle smoothly rounded for introduction into the urethral meatus. Each tube contains between 1 c. c. and 2 c. c. of a liquid, said to be a 10 per cent solution of protargol in glycerin.

(*b*) A larger tube, about 2 inches long, containing "viro-creme," said to be lanolin containing an antiseptic.

This outfit is manufactured by the Berliner Hygiene Gesellschaft, Berlin, Charlottenburg, Berlinerstrass 53. It is kept on sale in the canteen of the ship, and its cost is about 15 cents. The crew is encouraged and instructed in its use, and printed directions, in substance as follows, accompany the outfit:

Before intercourse rub the "viro-creme" well into the parts. After intercourse, urinate and wash the parts thoroughly with water. Then use one of the "viro-tubes" in the following manner: Grasp it in its entire length between the thumb and index finger and empty the contents with firm pressure slowly into the urethral canal. Allow the contents to remain about three minutes, and when it escapes wipe off the mouth of the canal with the cotton surrounding the tube. The tube should be used immediately after intercourse, although it has been found effective as late as three hours afterwards.

The crew is also advised to wash again, after returning from liberty, with the following solution:

Sol. liq. cresol. sap	2.00 gm.
Aquæ dist	1,000.00 gm.

This outfit commends itself by its cheapness and by being readily carried and applied. The scheme appears practical, and in the German cruiser *Jaguar*, where this plan has been followed for some time, only one venereal case has occurred in six months.

When men with syphilis are transferred, the fact should be made known to the medical officer of the ship receiving them. This fact is generally noted on the enlistment record, but is sometimes omitted, and the adoption of a positive uniform method of communicating such information would be of benefit.

REPORT ON THE U. S. S. MONADNOCK.

By J. M. EDGAR, *Surgeon, U. S. Navy.*

Vessels of this type are totally unfitted for cruising. They are too cold in winter weather and too warm in summer. When at sea, from the necessity for closing the deck ports, the air below is very impure.

The complement of this vessel is 231; during the summer it was increased to 315. At Shanghai during the summer months the temperature below decks, in the wardroom and cabin, was often 97°, so that nearly the entire complement slept either on the superstructure or spar deck. The superstructure has a flying bulkhead at the after and forward ends, with canvas sides. In this inclosed space about 130 of the crew are accustomed to berth, even during the winter when the temperature reaches freezing. The spar deck was furnished with double awnings during the summer and here slept those who could not use the superstructure. While at Woosung, when a moderate sea was running, the spar deck was often awash.

The ship has no ice machine, and in fact it would be difficult to find space for one, though its absence is sorely felt in the Tropics.

The officers' closets and heads, having been condemned, were replaced by a sanitary installation. The heads were constructed of metal, and at present the closets, urinals, and heads have a continual flow of water, so that it is very exceptional to detect any odor, even in extremely hot weather.

The ship is ventilated by Sturtevant blowers for exhaust and electric blowers for supply, besides which the different hatches, windsails, and deck ports (many of the latter are covered with cowls) furnish air. The ventilation is insufficient, and it is not uncommon during warm weather to have a temperature of 115° in the dynamo room.

Smallpox is always present at Shanghai, and during the last summer there were dysentery, dengue, and typhoid fever; no cholera or plague existed. Every precaution was taken during the summer months regarding food and as to the exposure of men to heat. Smallpox is so prevalent on shore that it is a regular yearly routine for the officers and men to be vaccinated in the latter part of November.

An ordinary seaman was vaccinated on November 29, with a markedly successful result. On December 11 he showed the papules of variola, which covered his body generally and his mouth and pharynx. He was transferred to the Shanghai isolation hospital. He probably contracted the disease at Nankin, several days previous to his being vaccinated. On the appearance of this case the two forward compartments of the ship were immediately fumigated with burning sulphur. Four tin buckets were one-third filled with burning coals and in each were placed two pounds of rolled sulphur. The sulphur was completely burned. The sick bay was disinfected by generating the gas from 2 pounds of formalin.

Four cots can be comfortably swung in the sick bay, but in warm weather or in cases of continued illness the cots are swung on the superstructure.

The medical department has been furnished during the year with a new operating table, microscope, typewriter, and desk.

The general mess system has worked successfully, and as a result the food is better cooked and served and of more variety. The canteen has served a most useful purpose.

Shanghai has two hospitals for the treatment of general cases and one isolation hospital.

The Shanghai general hospital is the largest and is the one to which most seafaring men are sent. This hospital can accommodate about 90, and there is now in connection with it a new building in course of construction which will be completed by the fall of 1905. This building is modern in all respects and will accommodate about 120 patients.

The isolation hospital is a modern, new brick structure, which was opened last November, and in it are treated all contagious and infectious diseases.

REPORT ON THE U. S. S. MASSACHUSETTS.

By PHILIP LEACH, *Surgeon, U. S. Navy.*

During the winter an epidemic of measles occurred while the vessel was at League Island, Pa. There were 17 cases, all of mild type. During the course of the epidemic 2 cases of extensive erythema with fever and 1 case of rubella developed. When the epidemic began the vessel had been for several weeks under repairs. During this time the blowers could not be run, and there being too little steam to properly warm the living spaces natural ventilation was impaired by the necessity for closing more hatches and ports than usual. These conditions continued until toward the end of December, when the vessel went to New York. The epidemic was combated by promptly transferring to hospital each case of measles, and all patients suspected of being in the early stage of the disease, by frequent airing of bedding and clothing, by favoring natural ventilation so far as cold weather and comfort of the crew permitted, and by reducing the number of people on board through granting more liberty than is customary.

On the 15th of December the gasket of a boiler manhole plate blew out, with the result that 4 persons were so scalded as to require transfer to hospital, while 3 others lost their lives. Of the 7 persons involved in the accident, 4 were imprisoned in the fireroom through the closing of the door by the jet of steam and water behind it. After a half hour's confinement one of these men, who had thrust his head into a coal bunker, managed to effect his escape, and though severely injured made a satisfactory recovery. Of the 3 remaining victims, 1 was found dying and 2 dead when, about an hour and a quarter after the accident, it was possible to enter the fireroom.

The following recommendations concerning the sick bay are submitted:

The space allotted to the sick bay should be so divided as to provide not only a dispensary, a bathroom and a ward, but also a room suitable for the examination and treatment of patients. It would be well to have all openings in this room so fitted that they could be made air-tight, thus permitting disinfection with formaldehyde. Such disinfection would be desirable as a matter of routine and of greater importance should it become necessary to use this room for surgical operations.

The ward, or sick bay proper, also should have air-tight bulkheads and doors. The need of frequent disinfection of this compartment is apparent. Its bulkheads should be made as nearly sound proof as practicable. The new inboard bulkhead of the present sick bay is made of thin corrugated iron, with numerous openings for the passage of pipes, etc. Consequently, the unavoidable and almost incessant noise in the adjoining compartment not only interferes with the examination of patients, but sometimes becomes a real affliction to those who are very ill. The ward should be fitted with folding berths.

The fittings of the dispensary should be so placed that the light from the air port will fall upon the counter. This feature is of special importance in microscopy. The arrangement of the fittings of the present dispensary is very satisfactory.

Tiles should take the place of linoleum in all the compartments of the sick quarters.

REPORT ON THE U. S. S. PRAIRIE.

By F. W. F. Wieber, *Surgeon, U. S. Navy.*

During the past year the ship was used as a transport for marines until May. While doing this work she was attached to the Caribbean Squadron and cruised along the Central American coast in the immediate vicinity of Colon; also along the north coast of South America as far as La Guaira. Guantanamo Bay became our headquarters for about two months. During this time the marine battalion from the Isthmus of Panama was in camp at Guantanamo for recuperation.

As a place for recuperation the camp at Guantanamo station was poorly adapted for several reasons. There was no natural water supply to the camp; all the drinking water had to be supplied by a water barge, from which barrels were filled and then rolled up the hill to the camp.

The men had to live on field rations principally, the nearest market being poor, and practically inaccessible. The climate was too similar to that of the Canal Zone, and the men were dependent on themselves for amusement.

On the Isthmus there was more variety and better supply of fresh food, and there was an ample supply of fresh water. As a result the men were more content on the Isthmus, and wished to return there, rather than remain at Guantanamo.

In May the ship was turned over to the training squadron, and two drafts were received during the remainder of the year, the first of which joined the ship at Guantanamo on May 10. Three days later the ship sailed for Hampton Roads, via Habana, where a stay of three days was made. The stay at Hampton Roads was only of a few days' duration. Some repairs and necessary docking brought the ship to the Brooklyn Navy-Yard, where she remained until June 20. Newport and Frenchmans Bay were next visited. At the latter place the ship remained until August 8, where everything favored the carrying out of the training programme.

Up to this time there had been little sickness on board. Cases of follicular tonsilitis, some with membranes, had occurred, but cultures up to that time had not shown the presence of the Klebs-Loeffler bacillus.

Returning south from Frenchmans Bay, the ship stopped at Gloucester, Boston, and Newport on her way to Hampton Roads. While at Gloucester, August 10–18, five cases of diphtheria occurred in rapid succession. These were all sent to the hospital as soon as possible.

Hampton Roads was reached on August 27. The landsmen were discharged from the ship early in September. It was recommended by the medical officer that the living quarters of the ship be painted before receiving new landsmen, but this recommendation was not approved.

The new landsmen arrived September 7. On September 8 two cases of tonsilitis arising among the new men were admitted to the sick list. The ship left for Gloucester with the training squadron October 20, and while there three other cases of diphtheria appeared, which were transferred to the Chelsea Hospital. Hampton Roads was reached November 4. On the way south a new case of diphtheria was discovered, which had to be kept in the general sick bay until transferred to a hospital. Diphtheria cases were probably caused by contact in the sick bay. The weather being raw and the ship inadequately heated and ventilated, new cases of tonsilitis constantly came under observation. Thus it will be seen that during another trip north on November 16 conditions were favorable for the spread of infectious disease.

November 23 a new case of diphtheria was detected, the day after the ship had left Boston, which case had to be carried along until port was reached. On the day of our arrival at Hampton Roads everybody on the sick list was sent to the Naval Hospital, Norfolk, Va. At this time, as on the previous occasions, measures were taken to prevent the spread of the infection in the ship.

It having been shown by this time that the ship and some of the crew were infected, the condition was reported, and resulted in orders to proceed to Port Royal for disinfection.

The accommodations for the sick, 18 bunks, have been sufficient, but the arrangement is defective, as was plainly shown by our experience of the past year.

In a training ship having many young men aboard there should be an isolation room in connection with the sick bay, in which all suspicious cases should be placed until they are proven not to be of an infectious nature. A room with four bunks and a water-closet would fill the indication.

A plan has been submitted for such an arrangement on this ship. The space thus added to the sick quarters will be well worth the loss of a few cubic feet of space to the ship's company. It will save an immense amount of worry, and may prevent the outbreak of an epidemic.

The substitution of a steam for the alcohol sterilizer in the operating room would be a more sure and less expensive means of sterilizing instruments and dressings.

An attempt will be made to try the feasibility of a steam sterilizing arrangement in the water-closet of the sick bay, to obviate the present unsafe way of carrying the infected articles from berth deck to the gun deck, and from there to the spar deck.

The steam pipe in the water-closet has been tapped to permit of the attachment of a steam hose. This will be led into a canvas bag, which holds the articles to be disinfected.

The ship is very much in need of a thorough overhauling. The distillers give at times very impure water. The ice machine proved entirely inadequate in the Tropics. It only cooled the water in the scuttle butt, and kept the fresh provision room at the proper temperature, but could not be depended on to furnish ice for the ship. The condensation of water on the cold-air pipes, in consequence of improper insulation, has continued, which condition keeps the wooden deck constantly wet. The ventilating system remains inefficient and faulty.

REPORT ON THE U. S. S. MAINE.

By I. W. KITE, *Surgeon, U. S. Navy.*

The *Maine* has spent a large part of the time since being commissioned at navy-yards, but some sanitary defects, which were present from the first, have not been remedied. Principally among these may be mentioned the officers' water-closets, which are badly arranged, insufficiently ventilated, and generally uncomfortable, and should be entirely remodeled; also the inadequate bathing facilities for the large deck force. These consist of six salt-water showers, which number should be at least trebled.

A much-needed change was made in the ventilators leading from the bridge deck to the firerooms, in that they have been lengthened sufficiently to reach above the boats and other objects on the deck, which formerly obstructed the free entrance of air into the cowls. A laundry for the use of the officers has been installed on the bridge deck, and it is hoped that this is the first step toward having all laundering for the ship done on board, which would be of inestimable benefit as a preventive to the introduction of disease. In this connection, the installation aboard all our ships of a small (steam) disinfecting plant is recommended. A cylindrical chamber, constructed of metallic plates riveted together and of sufficient size to receive a mattress, would answer for ordinary purposes. It could be placed in any suitable locality on board and steam supplied from the ship's boilers by pipe connection.

The cork paint formerly covering the sides of the sick bay, with its rough surface forming a lodging place for dust and disease germs, has been scraped off and a coat of white paint with glazed surface has been applied. The staterooms on the berth deck, which are inside the armor belt and which heretofore have had no opening of any kind other than the door, have each had a circular hole cut in the deck overhead and fitted with ground glass, so that now the occupants of these rooms have a few rays of natural light.

The health of the officers and crew was, in general, good, and with the exception of an epidemic of measles and one case of small-pox during the first quarter the diseases and injuries treated were of the kind usually met with on board ship. Quite a large number (43) of cases of tonsillitis were also admitted during the first quarter.

In conclusion, I have to say that my observation of the crew of this vessel confirms the remarks heretofore made by naval medical officers concerning the unsatisfactory physical development of a large per cent of recruits now being added to the Navy. Whatever may be responsible for such condition of affairs, it is undeniable that, in point of general physical development and vigor, an average crew of the present day would compare unfavorably with one of a few years ago. This is especially noticable in regard to the engineer force.

REPORT ON THE U. S. S. ALABAMA.

By C. J. DECKER, *Surgeon, U. S. Navy.*

During the year 1904 this ship steamed 15,766 miles; burned 13,704 tons of coal; was in port 297 days and at sea 69 days. Of the days in port, 42 were spent in Culebra and 26 in Guantanamo, which was being in port only in name, as these harbors were used for the most part as night anchorages after daily fleet drills. Again there were 43 days recorded as being in port when the ship was at target practice off Pensacola, and another period of 16 days off Menemsha Bight, Massachusetts, during the fall target practice.

During the year the ship took on coal twenty times, averaging about 685 tons. This usually takes a day's work for the entire crew, and another day is spent in cleaning up ship. The repeated handlings of the coal makes a fine dust that is insinuating to a degree and penetrates bags, hammocks, and bureau drawers, not to speak particularly of food.

In September the ship went to the League Island yard for repairs, and while there many improvements were made. The changes in the galleys were in accord with recommendations. The bakery was moved to a more suitable place and enlarged. An air blast was fitted to each of the 13-inch guns. This, it is believed, will prevent the "blow backs" that caused such havoc on the *Missouri*.

Two very important pieces of work were not done, one of which is ventilation of the shaft alleys and the other is the substitution of an efficient system of ventilation for the inadequate steam ventilators that are now supposed to supply the forward and after parts of the ship. Many tests of the outlets were made with an anemometer, and the air currents found to be very deficient. In many places practically no air came through the openings. With ventilation on this ship as good as that on the *Kearsarge* or *Missouri* there would be little left undone to make it comfortable and healthy. The evaporators have been repaired and the cold-storage plant is in excellent condition.

The health of the ship's company for the year has not been satisfactory, and the great increase in sick days, 4,732, as against 3,226 in 1903 and 3,009 in 1902, was, in my opinion, due to prolonged exposure to tropical conditions of weather. From the 4th of December, 1903, to September 17, 1904, the ship was cruising or lying in port either in the Tropics or South Temperate Zone in the summer season, except for 52 days at Pensacola, where the work was very strenuous for all hands.

On the trip to Guantanamo there were many heat prostrations in the fireroom force. During the whole of the cruise to the Azores and Mediterranean, which was made at slow speed, the foul bottom necessitated an increased coal consumption, with the consequent increased labor for the crew. This unusual work, with the heat of summer, lowered the vital force of the men, and they fell ill from all sorts of ailments which in a cool climate would not have affected them.

There were no epidemics during the year and few cases of contagious disease. One case of smallpox was interesting, as it developed after the patient had been 16 days in quarantine after known exposure. Isolation on board and prompt removal to hospital in the vesicular stage prevented contagion. One case of typhoid was sent to hospital at Trieste.

It has been noticed that men enlisted with slight varicocele, slightly enlarged tonsils, varicose veins, and old fractures are frequently on the sick list and show a large percentage of the surveys for discharge for physical disability. It would seem advisable to reject all such cases for first enlistment.

The difficulty of transportation in almost every place, except at a navy-yard, results in retaining many cases on board that could receive much better treatment in a hospital ship.

REPORT ON THE U. S. S. BENNINGTON.

By J. G. FIELD, *Surgeon, U. S. Navy.*

The chief disease-producing factor was almost wholly venereal, of a most virulent type, acquired in Callao, Peru, during a stay of three weeks last March. For nearly two months after leaving that port the different forms of venereal disease on board amounted to an epidemic.

As noted in the last report, the heads of the ship are most unsatisfactory, due to faulty design and construction, and it is next to impossible to keep them in an absolutely sanitary state or anything approaching it. Nothing short of complete remodeling can remedy these defects.

During the year an ice machine and cold-storage room have been installed on board. The crew has been kept supplied with fresh provisions and ice water at all times, which has added much to health and contentment. Ice has been provided for the officers' messes, including that of the chief petty officers, and for the medical department.

The vital need of this ship at present is more berthing space. Many of the crew in the damp and cold weather of the Aleutian Islands had to sleep on the deck below, not having any swings for their hammocks; hence in cold weather, or when there is a head sea, the ship is wet, and ill health results.

The storeroom which is assigned to the medical department, in the sponson of the starboard 6-inch gun aft, is too small.

REPORT ON THE U. S. S. HARTFORD.

By A. M. D. McCormick, *Surgeon, U. S. Navy.*

The *Hartford* has continued to be used as a training ship for apprentices and a practice ship for midshipmen, being attached during the fall, winter, and spring months to the Training Squadron. The cruise with the midshipmen was made mostly in Chesapeake Bay and New England waters, and that with the apprentices in the Gulf of Mexico and tropical waters. During the months of January, February, and March the headquarters of the Training Squadron was at Guantanamo, and during that time the *Hartford* made frequent trips to Santo Domingo, where the presence of this ship was required to protect American interests on account of the revolution in progress. The ship was at Puerto Plata when this place was taken by the Government troops. The wounded in the engagement were treated and cared for by the surgeons of H. M. S. *Pallas*, the U. S. S. *Detroit*, and the U. S. S. *Hartford*.

The health of the ship's company has been excellent, considering the fact that she is an old wooden ship and has been in commission more than five years, and also that she is overcrowded when the seamen apprentices are on board. Her complement is at present 553, too great a number to live under proper hygienic conditions in the alloted space.

Two cases of typhoid fever occurred in December. The origin of the disease was thought to be due to the men having drunk city water while the ship was at Washington in November.

Before the midshipmen were received on board, special changes were made for their accommodation. These included the installation of wash rooms, lockers, heads, pantries, and stationary tables sufficient to accommodate 150.

An important change for the health and comfort of the ship's company was made by inclosing the fireroom drum leading through the berth deck with lagging and sheathing it with pine boarding. This lowered the temperature of the berth deck, especially when the ship was steaming, in warm weather.

REPORT ON THE U. S. S. KENTUCKY.

By G. A. Lung, *Surgeon, U. S. Navy.*

Late in the autumn and early winter the usual epidemic of catarrhal conditions of the respiratory organs occurred. The cases were numerous, but at no time were any sufficiently serious to give anxiety.

Two cases of diphtheria were sent to the hospital. They were sufficiently separated by an interval of time to preclude the possibility of their being related. The infection was undoubtedly received on shore.

One case of varicella occurred on board and was sent to the hospital the same day. After the discovery of these cases of diphtheria and varicella the usual precautions were taken and no other cases developed.

The ventilating system of this ship is regarded as the best in the service. It is ample, giving a constant and abundant supply of fresh air to all parts. The greater part of the ship is ventilated by the plenum method; bathrooms, water-closets, and wash rooms by the vacuum method; while the operating room and some few other spaces for obvious reasons have both. Some of the well-known appliances by which the air is washed or forced through suitable screens should be installed.

The new operating room which has been finished and furnished according to the type established by the Bureau of Medicine and Surgery, was formerly the warrant officers' wash room. It is 7 by 9½ feet in floor space and 8½ feet in height; and when the necessary furniture is in place but little room is left for patient, surgeon, and attendants.

The sick bay is too small for a ship of this size with the crew usually carried.

The wire bottoms of the bunks now used for the sick are made of short pieces of wire linked together in rectangles and the extreme ends of the web thus made are suspended from stiff coil springs. The arrangement makes a too yielding and unstable bed bottom on which to place a patient, particularly if he is suffering from an illness or surgical condition calling for a straight and fixed position of the body. On these springs a man of medium weight sinks so deeply that the line of his body forms an obtuse right angle at the hips.

REPORT ON THE U. S. S. MISSOURI.

By R. M. Kennedy, *Surgeon, U. S. Navy.*

The *Missouri* is a twin screw armored battle ship of 12,500 tons displacement, and was built by the Newport News Shipbuilding and Dry Dock Company. The hull was launched December 28, 1901, and the ship was placed in commission December 1, 1903.

The *Missouri* has a speed of 18 knots, a length of 388 feet, an extreme beam of 72 feet, and maximum coal capacity of 1,850 tons.

The ship's complement comprises, officers, 35; men, 668; marines, 72; making a total of 775.

The upper deck and main deck, outside the superstructure, are laid with wood; the others are covered with linoleum, frequently shellacked.

This ship has seven decks and a hold as follows, viz: Bridge, upper, main, berth, protective, splinter, and platform.

Bridge deck.—This deck extends between the turrets and forms the upper part of the superstructure. On it are the ship's boats, and the 3-inch and 1-pounder guns. In the Tropics, and when climatic conditions permit, many of the crew sleep on this deck, and on the forward and after bridge. On the forward bridge is the pilot house, chart house, and cabin for the commanding officer. The after bridge is an ideal place for isolating cases of infectious disease should occasion arise.

Upper deck.—This extends from the forward side of the after turret to the stem. There are four 6-inch guns aft on this deck. Abaft of these guns are a suite of rooms for the executive officer, the latter's office, the navigator's stateroom, the junior officer's quarters. the junior and warrant officer's bathroom, and the wireless telegraphy room, which is just below the after conning tower. Forward are the officers' and crew's galleys, bakery, and laundry.

The executive officer's quarters are large and comfortable, and are abundantly lighted and ventilated naturally. They are situated aft on the starboard side, and comprise one cabin, stateroom, and bathroom containing a water-closet.

The navigator's stateroom is just forward of the suite referred to, and is satisfactory.

The junior officers' quarters comprise three large double staterooms, and a mess room with a pantry attached. The after port room is large, and is well ventilated and lighted naturally by one large air port. The remaining two are inside rooms, starboard and port. Natural light and ventilation of these rooms are not good, but the rooms are of comfortable size. As none of the rooms on this deck are supplied with artificial ventilation, and as the rooms are quite warm in the Tropics, an electric fan should be supplied in each. The junior officers' mess room is large, airy, and comfortable. It is situated amidships, and has a large skylight.

The junior officers' and warrant officers' bath is provided with two bath tubs, one for each; also two shower baths with faucet for hot or cold, salt or fresh water, one stationary washstand with hot and cold water faucets. and a mosaic tile floor.

Bakery.—The bakery has two ovens of navy standard sizes, Nos 1 and 2; one proof box, with steam coil underneath; two dough troughs, and one Day's dough mixer. This machine is electrically operated, has a capacity of 1½ barrels of flour, and mixes the mass thoroughly in twelve minutes. This bakery is capable of producing 900 loaves of bread (1¼ pounds each) daily. The room is quite comfortable, well ventilated, and supplied with mosaic tile floor.

The crew's galley is supplied with six sections of Navy standard range, four 60-gallon steam jacketed kettles, one steam cooker of 60 gallons capacity, two copper urns, one of 80 gallons and one of 40 gallons capacity. This room is large, and its ventilation would be improved by a skylight. The galley and bakery are inclosed by a wire screen, and are supplied with mosaic tile floors.

The officers' galley has three sections of same range as the crew's, and is similarly inclosed, having a tile floor, and is very satisfactory.

The officers' laundry is supplied with one tub, and has a mosaic tile floor. It is operated by two Chinese laundrymen especially enlisted for the purpose, and has already proved a great convenience and comfort in the Tropics.

Part of this deck is occupied by the crew as living or berthing spaces.

Main deck.—On this deck, inside the casemate, is located the remainder of the 6-inch battery (broadside). with splinter bulkheads between the guns.

On this deck are located the crew's water-closet and showers, the ordnance and pay offices, the drying room, warrant officers' quarters, wardroom officers' water-closet, junior and warrant officers' water-closet, compartment containing dishwashing machine, and berthing space for part of the crew.

The crew's water-closet and showers are in the forward compartment of this deck. There are 28 seats in all, 12 on each side, each 6 seats having an independent trough sufficiently wide and deep, thoroughly and constantly flushed, clean, and nearly always odorless, efficient, and satisfactory. The seats are made of wood, and can be easily removed for scrubbing, airing, and exposing to the sun. The after 2 seats on each side are inclosed in a room of about 300 cubic feet capacity, with a separate trough and urinal, the starboard being reserved for the chief petty officers, the port for the servants.

There are situated in this compartment three white enamel urinals (troughs), measuring in all 32 feet—two angular in shape, the other linear—constantly and efficiently flushed and free from odor.

Forward of the water-closet, but in the same compartment, are six salt-water showers for the crew, separated from each other by a bulkhead. The entire deck of this compartment is of mosaic tile. There is in all 4,500 cubic feet of air space. The ventilation is very good.

All of the water-closets and urinals in this ship are flushed by water which passes through the distillers, and is at times uncomfortably warm, particularly in warm weather or in the Tropics. Barring this defect, the flushing system is satisfactory and very efficient. The flushing pumps (two in number) have a capacity of 400 gallons per minute, and are used solely for the flushing system.

The drying room is situated amidships, and is merely a space about the uptake, which the engineer's force is privileged to use, though in size it is inadequate for the purpose.

The warrant officers' quarters are amidships, and comprise two double rooms, one single room, and a pantry on the port side, and one double room, one single room, and a mess room on the starboard side.

The staterooms are of good size, but the natural light is insufficient. The temperature and ventilation of the two forward double rooms (port and starboard) have been improved by the recent installation of a blower to supply these two rooms.

The single staterooms (port and starboard) are uncomfortable, particularly in warm weather and in the Tropics. These rooms are situated directly over the evaporator room, which heats the deck plates. Another source of heat is the evaporator trunk, just abaft these rooms. The after port double stateroom is likewise made uncomfortable from the same cause. If a blower were provided for these rooms, as in the case of the forward rooms, conditions might be improved.

The warrant officers' mess room is very comfortable and of good size, and is ventilated artificially and naturally.

The wardroom officers' water-closet, situated just abaft the after port splinter bulkhead, has three hoppers of the Torrento type, a very satisfactory and sanitary type of bowl, well flushed, and entirely free from odor; also three porcelain urinals, with water constantly playing over them, and at all times odorless. Total air space is about 592 cubic feet. Artificial light is used. The deck is of mosaic tile. Ventilation is very good.

The junior and warrant officers' water-closets are identically the same in every respect as the preceding.

A dish-washing machine was installed on board this ship February 12, 1904. This is the first ship in the Navy on which such a machine has been introduced. This machine was selected for test only, after a thorough investigation.

The machine has been in operation every meal since its installation. There has never been a breakdown of any part, though operated by a number of inexperienced men. Experience has shown that it secures far better results in cleanliness than by the old method of having the dishes washed by men detailed for this purpose. At the present time the dishes of one-half the messes (about 400 men) are washed by the machine and stored away perfectly dry in three-quarters of an hour—about one and one-half hours being required for the mess gear of the entire crew. All dishes are stored away on shelves in the compartment where the dish-washing machine is installed, which compartment, however, is not sufficiently large.

The dynamo rooms of this ship are on the forward splinter deck, and contain the dynamo plant, which consists of four 32 and four 50 kilowatt generating sets, all of 80 volts pressure, at the terminals.

There are installed in the ship 600 fixed 16-candlepower incandescent lamps, and in addition 170 portable lights of the same power.

The dynamo rooms have been found comfortable, even in the Tropics, the tropical temperature being about 95° F., and the rooms are well ventilated.

Berth deck.—On this deck the medical department, prisons, refrigerators, ice machine, canteen, berthing space for part of crew, machinists' and petty officers' quarters, firemen's washrooms, servants' lavatory, evaporator room, engineer's workshop, wardroom staterooms, wardroom mess room and pantry, and the admiral's and captain's quarters.

The medical department occupies all of compartment A-100 and part of compartment A-101 of the berth deck, which thus far have proven sufficiently commodious. The entire department, with its equipment, is admirable. The space is generally cool and well ventilated.

The sick bay contains 14 cots, these being arranged in double tiers in the center of the compartment. Of these, 4 can easily be detached from their supporting stanchions, with but little or no discomfort to the patients, and used as stretchers. The balance of the cots are attached to stanchions on the starboard and port sides of the compartment, and when not in use are folded up on hinges and secured, thereby giving more deck space. The lower permanently fixed cots are defective and not comfortable, inasmuch as the mattress is but a few inches from the deck, and when occupied by a heavy patient the springs of the cot yield, and the patient rests on the deck.

The ward is well heated by three radiators, and is amply lighted naturally by three large air ports, and artificially by five 16-candlepower incandescent lamps. There is no battle circuit for the attachment of a battle lamp.

On the starboard side there is a large transom, 12 feet long, 2 feet wide, 1½ feet high, containing four large drawers.

The artificial and natural ventilation is very good as provided by two 7½-inch McCreery terminals, the air ports referred to, and one 12-inch electric fan; but at sea the air ports must be closed, and when the weather is rough it becomes necessary to cover the intakes for the forward blowers which supply the entire department, thus cutting off all ventilation.

The deck is covered with linoleum, frequently shellacked, and no more water used on it than is necessary.

The sides of the compartment are painted with smooth white enamel and are easily kept clean, but on the ceiling cork paint has been employed, which is not only difficult to keep clean, but is apt to lodge microorganisms of infectious diseases.

From the sick bay the bathroom is entered on the starboard side through a water-tight door with a glass port. It has a mosaic tile floor, one 14-inch air port, which provides good ventilation in port, and always sufficient light; one water-closet—Monitor—the bowl of which always flushes easily and well, and is free from odor. The only objection to be found is the nest of pipes behind the bowl, where filth and water are apt to accumulate.

The room is well heated by a radiator. One 6-inch McCreery ventilating terminal, with damper, furnishes the artificial ventilation, and one 16 candlepower incandescent lamp the artificial illumination, which is ample.

There is also one stationary oil lamp on a bracket; one stationary washstand, with faucet for water, hot or cold, salt or fresh; one white enameled bath tub, with faucet and shower, for hot or cold, salt or fresh water, and a fresh-water gravity tank overhead of 112 gallons capacity.

The operating room is contained in the sick bay or ward on the port side, and is completely inclosed by bulkheads, thus making a distinct and separate room. It has two doors—one forward, communicating with the ward; the other aft, water-tight, containing a glass port and communicating with the berth deck. These doors are very convenient, permitting the admission of an injured man directly from the berth deck or ward.

The floor is of mosaic tile. The room is well heated by one radiator. Its dimensions are 7¾ feet high, 8½ feet wide, 13 feet long, and its actual cubic capacity, after making proper deductions, is about 720 cubic feet. It contains one large air port 14 inches in diameter, which furnishes considerable light and good ventilation when in port. Artificial ventilation is provided for by a 6-inch McCreery terminal. The artificial illumination is excellent, and is supplied by one 16-candlepower incandescent lamp and a cluster of three 16-candlepower incandescent lamps with reflector, made on board this ship. This cluster is light in weight, and can be easily held if necessary. There is also a battle circuit for the attachment of a battle lamp.

One sterilizer has been provided, which consumes considerable alcohol. Two sterilizers should be allowed ships of this type—one for instruments, the other for dressings—and should be electrically heated. The room contains a porcelain stationary washstand, with faucet for hot or cold, salt or fresh, water. A large metallic frame holds three 2-gallon irrigating bottles containing antiseptic solutions.

The room is provided with a standard surgical cabinet and operating table, a white enameled metallic stand, with shelves for white enameled buckets, basins, trays, jars, etc., and also a white enameled table of good size, with plate-glass top and with an additional shelf underneath. This room is very well equipped and very satisfactory.

The dispensary is just abaft the operating room, and communicates with the berth deck, compartment A–101, by means of a sliding door. It is well lighted by two 16-candlepower incandescent lamps—one stationary, the other portable—and well ventilated by two 14-inch air ports. The deck is covered with linoleum, and is frequently shellacked.

The stationary washstand should be replaced by a large enameled sink, which would be more useful.

The room is well heated by one radiator, and its floor space is ample.

The room contains a writing-desk cabinet, five large lockers, a folding or disappearing typewriter desk, a sufficient number of drawers, and one metallic case for letters.

The prisons, two in number, are situated forward on the port side of compartment A–101. The forward prison has an air capacity of 400 cubic feet. It is intended for one occupant, but has no air port and no artificial ventilation. A blower should be supplied. Natural ventilation is secured by small holes in the door and in the upper part of the bulkhead; the air is foul and stagnant.

The after prison, just abaft the former, is very comfortable, and no cell could be more desirable. It has an air capacity of 480 cubic feet, and is well lighted and ventilated.

The number of cells is insufficient, and it is necessary at times to confine prisoners in a compartment not intended for such use on the splinter deck.

There is an Allen dense-air machine, situated on the starboard side of compartment A–106, capable of providing the cooling effects of 2 tons of ice per day. It is connected with the crew's scuttle butt on the main deck and the large refrigerator rooms on the berth deck, and in addition has a freezing box capable of freezing 27 cakes of 25 pounds each in twenty-four hours.

There are six refrigerators or cold-storage rooms, capable of containing approximately two weeks' supply of fresh meat. The average temperature of the space is about 32° to 36° F.

One ice machine is not sufficient, repairs and overhauling from time to time being necessary. Although the present machine has worked very satisfactorily, the installation of an additional one is recommended.

The canteen is situated in compartment A–106, just forward of the diagonal armor belt (starboard side), and has in stock 160 different articles, including the best confectionery, crackers, and light cakes, various kinds of tobacco, many kinds of soap, stamps, and all kinds of serviceable articles. These are bought at wholesale prices after competition and inspection of samples, and are sold at approximately cost prices, which results in saving about 25 per cent to the officers and crew. The canteen is opened during meal hours, and has proved a great convenience and benefit.

The machinists' and petty officers' lavatory is situated in compartment A–106. It is a very comfortable room, 13 feet long by 10 feet wide by 7½ feet high, has a mosiac tile deck and one large 14-inch port. This room is well heated by one radiator, and contains 8 small lockers for toilet articles and 6 white enameled basins, with faucets for hot or cold, salt or fresh, water, and 2 salt-water showers.

The firemen's washrooms, two in number, one on each side, deserve consideration. The bathing facilities in them are insufficient.

These spaces are particularly warm in the Tropics, especially when the boilers are in use directly underneath them, and depend entirely on artificial illumination and artificial ventilation.

The deck is of tile without a drain, and after bathing is frequently awash.

At present in the Tropics there are used on board this ship about 5,000 gallons of fresh water daily.

The servants' lavatory is just abaft the firemen's washroom (starboard), dimensions being 10 feet by 5½ feet by 7¾ feet. It has a tile deck with drain, and contains two salt-water showers, one urinal constantly flushed and free from odor, and two stationary washstands.

The evaporator room is intolerably warm, being directly over the engine room. The deck plates at times become so hot as to be painful to the bare skin, and even uncomfortable to the feet if shod and exposed to the deck. Wooden gratings on the deck plates would improve matters somewhat.

The distilling apparatus consists of two large distillers, with a small supplementary distiller and four evaporators. These are supposed to have a combined capacity of 10,000 gallons of potable water a day. The plant is sufficient to produce an ample quantity to supply the boilers with the necessary feed water and furnish the ship's complement with sufficient fresh water for all purposes. There are six fresh-water tanks, four in the forward hold and two aft, capable of holding 15,800 gallons of water.

The engine rooms are spacious, cool and comfortable, and well ventilated. Their average tropical temperature is about 100° F.

The wardroom officers' staterooms number 16 in all, 3 on each side inside the diagonal armor belt and 5 on each side abaft the casemate. The rooms inside the casemate are of fair size, each having a capacity of 300 cubic feet, and are supplied with one deck deadlight and one small McCreery ventilator.

The rooms outside the casemate are, as a rule, quite comfortable and cool. Each has one 14-inch air port and ventilator. The air space of these rooms ranges from 340 to 400 cubic feet. There should be one additional electric light placed in each wardroom stateroom, as the artificial light is not sufficient. Each wardroom stateroom is supplied with one 12-inch electric fan.

The captain's and admiral's quarters are commodious and comfortable.

Splinter and protective decks and hold.—These decks are below the protective deck and contain engines, firerooms, trimming tanks, chain lockers, dynamo rooms, coal bunkers, torpedo room, blower rooms, magazines, and shell rooms, steering gear and air compressors, ammunition hoists, and holds.

These decks are remarkably clean, well lighted artificially, and extremely well ventilated.

On the platform deck is the medical storerooms in compartment A–25, after starboard side. The room is well ventilated and lighted and always dry. Ample shelving, with suitable frames for the bottles and shelves for bulky articles. There are two large lockers containing many shelves, in one of which the alcohol and all liquors are kept.

VENTILATION.

This ship is fitted with a most satisfactory system of artificial ventilation, supplying fresh air to living spaces, storerooms, and spaces in which it is desirable to reduce the temperature.

All living spaces above the protective deck, and storerooms below (except magazines) exhaust naturally and without special provisions as to piping. In storerooms there is a circulation of air only when the doors or hatches leading to them are left open.

Circulation of air in the magazines is assured by special exhaust pipes leading from each compartment into the barbette of the 12-inch guns, fresh air being furnished by blowers which supply these spaces only.

In those cases in which it is desirable to reduce the temperature of the spaces, and where adequate area of exhaust duct can not be provided, power exhausters are installed, drawing the air from the heated compartments and conveying it upward through ducts and cowls to the open air or into the boiler hatch casings, where it is impelled upward by the induced draft in those spaces. Such are the conditions and practice in the dynamo-room system, the steering engine-room system, and in the system ventilating the splinter deck ammunition passages and the berth deck between the forward athwartship armor and bulkhead No. 66.

In cases where it is desirable to reduce the temperature locally, as in the magazines next to dynamo spaces, engine spaces, or coal bunkers, air spaces are provided next to the bulkheads and circulation of air in them is obtained by means of branches from the main air-supply pipe or by means of small power blowers.

There are 26 electric fans, 12-inch blades, one-twelfth horsepower, distributed to various parts of the ship. The junior officers' staterooms are not supplied with fans, and it is deemed advisable that fans be installed in these rooms, which are very warm in the Tropics.

There are two serious defects in the ventilating system, i. e., the situation of intakes for forward and after blowers. At sea in rough weather it becomes necessary to cover the openings of the exhaust blowers in the crew's head and of the supply blower for the marine compartment and the sick quarters. Aft it is necessary to close the openings for the blowers ventilating steering-engine room, cabin, and wardroom abaft the diagonal armor.

The living and berthing spaces for the crew and officers are well provided with radiators.

Before closing this report reference should be made to the long arm hatches located on the berth deck. They are of tremendous weight and are operated by compressed air. These hatches, as originally installed, were specially dangerous and liable to fall if allowed to stand vertically for any length of time, as in this position the air leaks from behind the piston, leaving no air to hold the door up. The slightest jar will cause it to drop of its own weight. Catches have been fitted to hold these doors until air is introduced to close them; but as one accident (a severe contusion) has already occurred since the introduction of the catches, these doors must still be considered dangerous. The vertical sliding doors, similarly operated, are equally dangerous.

The health of the officers and crew has been very good and the sanitary condition of the ship excellent.

REPORT ON THE U S. S. CLEVELAND.

By S. G. Evans, *Surgeon, U. S. Navy.*

Considering the diversity of climatic conditions encountered during the year, the health of the ship's company has been excellent; no serious cases of illness have occurred and no deaths.

A great improvement in the health and spirits of the men was noticed during the cruise to Norway and other northern ports.

The heat in the Mediterranean in summer is extremely enervating, and the crew naturally become listless. A certain portion of each year should, as far as practicable, be spent in an invigorating climate.

The sanitary condition of the ship is not perfect. The ventilating system is a failure, and the plumbing throughout the ship is very poor and a source of constant annoyance. It is recommended that the ventilating system be changed to a supply system and that the plumbing be renewed. The ice and cold storage plant has proved inadequate in warm climates, and the loss through the spoiling of provisions in cold storage has been considerable. The capacity of the plant should be doubled.

Poor physique of many of the crew, particularly in the fireroom force, exists.

The size of the sick bay should be increased, and this can best be done by moving the sick bay, dispensary, and bath to the second compartment on the berth deck.

REPORT ON THE U. S. S. IOWA.

By C. De W. Brownell, *Surgeon, U. S. Navy.*

The general health of the ship's company for the year has been good. There was a mild outbreak of measles during the first quarter, 11 cases in all. Five of these were sent to hospital, and the others were treated on board. Those remaining on the ship made good recoveries and were discharged to duty.

The new system of electric blowers, installed while the ship was last out of commission, has added immensely to the comfort of the officers and crew in the Tropics. There are 5 electric-motor blowers on the gun deck, 4 on the berth deck, 6 on the orlop deck, 2 in the dynamo room, 1 in the steam-steering compartment, and 1 in the lower evaporating room. The blowers on the gun deck are one-half horsepower. They exhaust from the pantries and heads. All the others are supply, the air being brought from cowls on the upper decks. The blowers on the berth deck are 3¾ horsepower. Two are forward and two aft, outside the armored casemates. These supply all of the compartments on this deck. On the orlop deck amidships are two 2¼-horsepower blowers, which supply the ammunition passages and 8-inch handling room. Forward on the orlop deck are two 3¾-horsepower blowers, which supply the 6-pounder, 4-inch, 8-inch, and 12-inch ammunition rooms. Aft on the orlop deck are also two 3¾-horsepower blowers, which supply the after 4-inch, 8-inch, and 12-inch ammunition rooms.

The blowers in the dynamo room are one-fourth horsepower, those in the hydraulic-pump room one-half, and those in the steam-steering compartment and lower evaporating room 1½ horsepower each. By means of the electric blowers, the old Sturtevant blowers, still in fair condition, and the fans in the staterooms, mess rooms, and sick bay, a comfortable temperature has been maintained in the ship during the hottest weather she has experienced on this cruise. This was at Guantanamo, in May. The ship is well heated by steam, and was perfectly comfortable during the recent cold weather.

Defective arrangements, the subject of unfavorable reports in the past, have been remedied in the following particulars: The heads are now well ventilated and comparatively free from odor. The sanitary tank has been fitted with a steam pump, which keeps it clean and prevents the collection of grease. The new linoleum gives but little trouble, there being only a few places on the gun deck where water has worked under it. A cement of rubber, whiting, and gasoline is used to secure it to the deck. An asbestos casing has been fitted between the smokestack and bakery, which appreciably reduces the high temperature of the compartment. The cold-storage room is in excellent condition. The temperature is uniform in the different compartments, and varies from 8° to 35° F. Sufficient ice is furnished to keep the scuttle butt always cool.

The new shower baths forward on the gun deck, supplied with hot and cold salt water, are much used, and contribute greatly to the comfort and cleanliness of the crew. A small laundry has been installed for the use of the officers and petty officers, and has proved a great convenience at sea and in foreign ports. The sick bay is well situated, just forward of the armored casemate, on the starboard side. Its size, ventilation, and lighting leaves little to be desired. It contains 14 cots, and when all are not in use the superfluous ones are stored away. The dispensary and bathroom are good-sized rooms adjoining the sick bay, and fill all requirements. The room originally intended for an operating room is too small and dark, and is now used as a consulting room. The sick bay, however, affords ample space and good light for operating. The unpleasant effect on the patients who may have to be present is the only drawback. The tub in the bathroom is old and the enamel is much worn; it is therefore difficult to keep clean, and should be replaced by a new one.

REPORT ON THE U. S. S. FLORIDA.

By Lewis Morris, *Surgeon, U. S. Navy.*

The general health of the complement has been excellent.

From June 4, 1904, to August 31, 1904, the ship was used as a training ship for midshipmen, who were berthed in hammocks on the after part of superstructure deck, and the port wing passage was fitted with temporary lockers in which they stowed their clothing.

While at the navy-yard, League Island, a breakwater was built across the forecastle, forward of the bitts, which adds greatly to the comfort of the crew, preventing, as it does, the deck from being flooded when under way. The floors of the bathrooms in the sick bay and commanding officer's quarters, together with the wardroom, warrant officers' and crew's water-closets, were tiled at the navy-yard, adding greatly to the appearance and cleanliness of the ship. The ventilation, by 11 electric blowers, is excellent, even with the ship battened down at sea. It would be an advantage in giving more deck room in the sick bay if standing bunks were changed to folding ones.

REPORT ON THE U. S. S. ARKANSAS.

By Theodore W. Richards, *Surgeon, U. S. Navy.*

About 90 midshipmen were on board during the summer, though as they were divided into two sections no more than half that number remained in the ship at one time. The entire after portion of the superstructure deck was set aside for the exclusive use of the midshipmen, and proved to be well adapted for the purpose. With the side curtains down there was ample light and air, yet sufficient protection was thus afforded during the few days of inclement weather experienced on the cruise. Ordinarily, however, the curtains were rolled up and the midshipmen practically lived in the open air, but were always under cover at night. Four mess tables were installed in this space, which also afforded ample room for the hammocks of all.

Shortly before leaving Norfolk for Pensacola a case of rubella occurred on board and subsequently 6 others developed. Each new case was promptly isolated and transferred ashore, a tent from the ship being set up in the grounds of the naval hospital at Pensacola to receive some of them, the building itself being overtaxed at that time. Symptoms were usually very mild and scarcely noticeable, so it became necessary for the medical officer to make a careful inspection of each member of the crew twice daily in order to insure prompt detection of new cases. These inspections were continued until ten days after the last case had been sent ashore and the ship fumigated with formaldehyde gas.

Three cases of typhoid fever occurred during the year, all of which were doubtless contracted on shore. Two of these patients were transferred to hospital, while the third was retained on board and was eventually discharged to duty, no naval hospital being available during his illness.

The general construction and sanitation of this ship having been set forth in previous reports, mention will be made only of certain defects in the ventilating system which have been recently rectified. The more important of these was as follows: The berth deck forward had an ample artificial supply of air, but no exhaust. As the sick bay, dispensary, and bathroom (with water-closet) are located well forward on the port side of this deck, air from those compartments had no adequate outlet when the ship was at sea, or in cold weather when in port, without passing back through the crew's quarters on the berth deck, thence through the wing passages and dynamo room, and so through a hatch leading up to and inside of the superstructure, a total distance of half the ship's length. As the water-closet is forward of the sick bay, emanations therefrom were blown back into the latter compartment, to be thence disseminated through the ship. It is obvious that with a contagious case in the sick bay (and in cold weather there is no other place available for isolation), the entire living space forward, as well as the dynamo room and superstructure, would be subject to immediate infection.

To remedy these conditions a new ventilating duct has been installed, leading from the water-closet and sick bay to an exhaust blower in the dynamo room. This insures not only improved ventilation in the sick quarters, but what is deemed of more importance, the crew's living spaces are no longer subject to vitiation therefrom, and in case of necessity the sick bay may now be completely isolated.

The other change referred to is in the position of the four inlets of the blowers supplying air to the berth deck, forward and aft. Formerly they were located on the inboard side of the bulwark, or hammock berthing space, surrounding the upper deck of the superstructure, and within a few inches of that deck. As that portion of the ship is commonly used for berthing purposes, side curtains fill in the space between the bulwarks and the deck above, and consequently the entire supply of air for the berth deck was drawn from a closed compartment which at night is well filled with sleeping men. The new intakes rise above the bulwarks and are fitted with large cowls which are trimmed outward through openings in the side curtains.

REPORT ON THE U. S. S. TACOMA.

By M. K. Johnson, *Surgeon, U. S. Navy.*

The *Tacoma* is a sheathed protected cruiser 308½ feet long, 44½-foot beam, and about 3,200 tons displacement at mean normal draft.

The quarters for the crew are large and have ample air space, both on the gun and berth decks.

Ventilation is supplied by 16 electric blowers. Six of these blowers are of the supply variety and the others being exhaust. The exhaust system is used entirely for the officers' quarters and the crew's spaces. The supply system supplies the magazines, the dynamo room, the engine room, the firerooms, and the steering-engine room.

One blower, after supplying the after magazine, exhausts from the wardroom country, and the fumes of ether are very frequently noticeable. Another natural result of the supply system in the engine room and the exhaust system in the officers' quarters is that the foul air from the former is forced into the latter, the latter being just abaft the engine room door, making the air in the officers' quarters at all times foul.

The ventilation of this ship, with the exception of the water-closets, should be on the supply system.

The ship is supplied with a 1-ton Allen dense air ice machine in a compartment on the berth deck, the cold-air pipes leading to the freezing tank and cold-storage room adjoining, and to the scuttle butt on the gun deck. In the Tropics this machine is usually capable of making ice or keeping at a low temperature the cold-storage room for the preservation of fresh provisions, but rarely both.

The sick bay and dispensary are located on the gun deck forward, the former on the port and the latter on the starboard side, about 100 feet abaft the bow.

The sick bay is supplied with 6 Pullman bunks, 2 of which are stationary and 4 folding. Adjoining the sick bay aft is the bathroom and water-closet, which are all that could be desired. The dispensary is of fair size and conveniently arranged. The medical storeroom is dry, well ventilated, and sufficiently large.

The health of the crew of this vessel has not been up to the usual standard, and this is attributable to two causes: First, the cruise of the ship around South America and in the West Indies, touching at ports notorious for venereal diseases, and second, the extremely poor physical condition of a large number of recruits when received on board. Probably more than half the crew of this vessel have, or have had, venereal disease of some character since the ship has been in commission.

No epidemics of any sort have been encountered since the ship has been in commission. While the ship was in Callao, Peru, in July, 1904, bubonic plague existed ashore, but no communication with the shore was allowed.

REPORT ON THE U. S. S. DES MOINES.

By Edgar Thompson, *Surgeon, U. S. Navy.*

This ship was placed in commission March 5, 1904, and since that date has cruised in the West Indies and on the European Station.

The sanitary condition of the ship and the health of those on board have been good.

There have been two cases of gunshot wounds, caused by the .22 target rifle, which were accidental, being a result of the increased amount of target practice.

The location of the sick bay is extremely unsuitable, being forward on the port side of the gun deck.

On the berth deck just below is the engineer's machine shop. From the deck are suspended shaft hangers, causing much noise and vibration when any of the power tools are worked, which has made the sick bay most uncomfortable and difficult to conduct the most simple physical examination.

The scuttle butt is directly in front of the sick bay. It is a meeting place for all hands. The hatch most used is exactly in front of the sick bay door, and there is a continuous procession of men up and down the ladders. The ice machine is located on the berth deck opposite the sick bay. Directly abaft the sick bay is a bulkhead with an iron door, which is often slammed and makes a tremendous concussion.

On the main deck and almost directly above the sick bay is a large electric winch, which is used frequently in hoisting boats and in coaling ship, and adds to the other noises.

The ship has a large number of hatches, and these, with the spacious gun ports, provide very good natural ventilation for the gun deck, on which are the main berthing spaces.

The ventilation of the berth deck is not so good on account of the very small size of the air ports, which are of limited use for ventilation and fail to admit sufficient daylight to dispel the internal gloom.

During almost all hours of the day artificial light is necessary.

The ship is well supplied with electrically driven blowers, and they do their work well—of these some supply, others exhaust. But the mixing of the two systems does not work to the best advantage, as the following example will show: The storerooms and magazines under the wardroom have the supply system; the wardroom country above has exhaust; the foul air that escapes under pressure from the storerooms ascends the hatch to the wardroom compartments and a certain percentage is drawn through the living rooms in the currents created by the strong exhaust system.

The officers' water-closets are on the berth deck. The closets should be on the gun deck, where drainage and ventilation could take place. The present location on the berth deck can not be too strongly condemned. They are in the space allotted to the warrant officers, who justly complain of the odors which are always noticeable and at times most offensive.

The closets are of the under-water variety, and the complicated pump arrangements are always leaking and malodorous and, at times, out of order. This under-water system of closets has no place on a ship of this kind.

The use of linoleum on the deck about the galley would seem to be a failure, as within a few weeks it becomes soaked with grease and dirt and will not hold shellac.

The wardroom and warrant officers' pantries are badly situated on the berth deck, and each has one of the small berth-deck air ports which are closed at sea.

There are no drains from the pantries, and all the waste water must be carried up to the gun deck and dumped overboard. The ventilation is bad.

The ice and cooling plant is very good and it has been a great comfort to all. A constant supply of ice and cool water is maintained and fresh meat is preserved for many days.

REPORT ON THE U. S. S. DIXIE.

By A. G. Grunwell, *Surgeon, U. S. Navy.*

The internal construction of the vessel is such that with proper care she can be readily kept clean, and no effort to attain this end has been spared. The berthing spaces are large, airy, and well ventilated, and a much larger number of men than comprises her present crew could be accommodated. The bilges have been systematically kept dry and clean.

The ventilating system of the ship is practically perfect.

The heads and shower baths provided for the crew are ample, and have been kept unusually clean and in good working order, and have done much for the health and comfort of the crew.

The food for the crew has been uniformly excellent, and every care has been taken to see that it was of good quality and properly prepared.

The standard of physical development among the men of the crew is unusually high. Anemia among the men of the fireroom force, the cooks, and the electricians has been at times very noticeable, and has been combated by putting these men in the pulling boats from time to time in order to get them in the open air and away from the ship.

The service in which the ship has been engaged has been unusually arduous and, as was to be expected, has had its effect upon the health and comfort of the crew. Having been placed in commission October 1, 1903, she has been since then two hundred days actually at anchor at or in the immediate vicinity of Colon, Panama, a place noted for its depressing atmosphere, its humidity, and its high temperature, as well as for its uncomfortable anchorage in an open roadstead.

The remaining time has been spent principally in conveying marines to and from Colon, in practicing various naval militia organizations, and in carrying enlisted men to and from the Caribbean station, all necessarily attended by much hard work, discomfort, and short stays in port, with no opportunity for relaxation. The effects of this hard duty have been more pronounced upon the officers of the ship than upon the men, probably because the most of them have had a great deal of tropical service previously.

As regards freedom from dangerous illness, the health of the officers and crew has been very good indeed, although, considering the advantages of the ship for living purposes and the high physical standard of the men, the sick list has been generally larger than it should have been under other conditions. This has been largely due to the fact that men becoming ill from any cause do not regain their health rapidly, but spend the most of their time upon the sick list in convalescence.

Of the diseases most difficult to combat syphilis, digestive disturbances, and anemia stands to the front. Several men having been previously treated for syphilis at various places and discharged as cured have suffered a return of symptoms after an interval of service in these waters.

During the last stay at Philadelphia, in August, and for a month thereafter follicular tonsillitis caused some trouble. It disappeared simultaneously with a systematic frequent changing and boiling of the drinking cups at the scuttle butts.

Malarial fevers are not uncommon on board. Three men while on liberty were arrested and confined overnight in the native jail at Colon and promptly developed remittent fever. At Colon, since September 19, 16 other cases of malarial fevers have been treated, only 2 of which were of the continued type, the remainder with one exception being of the tertian variety.

Mosquitoes were not difficult to find on board, and although the great majority of them were of the genus *Culex*, two specimens of *Anopheles* and one of *Stegomyia* were found. These mosquitoes certainly came off to the ship from the shore, for careful and systematic searches for breeding places on board—on the spar deck, in the boats, winches, holds, bilges, drains, and every other place where water would accumulate—never revealed any. They always appeared in the greatest numbers when the weather was damp and the wind slack, and undoubtly getting adrift from the shore came off to the ship, attracted by her lights. The false sense of security arising from the supposed fact that mosquitoes do not travel far must certainly be abandoned, and the sooner the better. It is said that mosquitoes appeared on board the U. S. S. *Columbia*, anchored a mile offshore, during her recent visit to Colon. Whenever an epidemic of mosquito-transmitted disease is raging on shore, ships had best do as of old and promptly put to sea or clear for some other port.

In this place, owing to the importance of the work soon to begin, it might be well to add a few words regarding Colon, from the standpoint of ships obliged to lie at anchor there for considerable periods of time.

Colon possesses in profuse abundance all the requisites of a pest hole. From typhoid and dysentery there is little danger to ships, as neither milk nor vegetables can be obtained on shore, and the water supply of ships is distilled on board with no danger of contaminaton. On the other hand, mosquitoes, *Culex, Anopheles, and Stegomyia*, abound, and it only requires the advent of large numbers of unacclimated persons and a little carelessness to set the flame of epidemic infectious disease going. Malaria in several forms is prevalent, but during the last stay of this vessel at Colon only one suspected case of yellow fever occurred on shore. Several cases were, however, reported from Panama, on the other side of the Isthmus, and with the easy railroad communication and the ideal conditions for the spread of yellow fever existing the danger to Colon is constant and obvious.

Apart from these the climate and conditions existing at Colon are depressing in the extreme to those forced to spend much time on a ship in the roadstead. First, there is little or no protection from the sea, and rollers come in of such a size as to make the handling of small boats hazardous. Rains are abundant, and the atmosphere is always very damp, owing to the fact that the town and the swamps about it are situated in a V-shaped pocket of mountains, which tend to concentrate the moisture in the atmosphere and keep it saturated. The heat is not unusually great for a place located in this latitude, but the combination of heat and moisture is often hard to endure. Another important factor which can not be overlooked, is that Colon affords absolutely no recreation for enlisted men going on shore.

REPORT ON THE U. S. S. DENVER.

By C. D. Langhorne, *Surgeon, U. S. Navy.*

The *Denver* is a sheathed protected cruiser, and was placed in commission May 17, 1904. The health of the crew has been excellent, and the diseases only those incident to life aboard ship.

The ventilating system at first consisted of 16 sets of electrical blowers, 8 being supply and 8 exhaust, and it was very unsatisfactory. Upon recommendation the blowers were changed to 11 supply and 5 exhaust sets. A pipe was installed leading from over the fresh-water tanks to a cowl on the main deck, giving natural ventilation to the hold. In addition there are 3 steam-driven blowers for forced draft.

The electrical blowers, as now arranged, are as follows:

Set No. 1: To exhaust from the crew's water-closet and lavatories situated on the gun deck forward.

Set No. 2: To supply fresh air to the two forward compartments (crew's space) on the berth deck, brig, and storerooms.

Set No. 3: To supply fresh air to the compartment (crew's space) on the berth deck and storerooms.

Set No. 4: To exhaust from the workshop, washrooms, and berth deck.

Set No. 5: To supply fresh air to the handling room, 5-inch shell room, and storerooms.

Sets Nos. 6 and 7: To supply fresh air to the dynamo room and 5-inch magazine.

Set No. 8: To exhaust heated air from the dynamo room.

Sets Nos. 9 and 10: To supply fresh air to the engine rooms, the leads of these fans were changed so as to give a better distribution of fresh air.

Set No. 11: To exhaust from the officers' water-closets and bathrooms.

Set No. 12: To supply fresh air to the after 5-inch magazine, handling room, and storerooms.

Set No. 13: To supply fresh air to the after magazine, shell room, and storerooms.

Set No. 14: To supply fresh air to the steering engine room.

Set No. 15: To exhaust from the steering engine room and water-closets aft.

Set No. 16: To supply fresh air to the officers' quarters.

The crew's space on the berth deck is large, cool, and well ventilated since the change in the ventilating system. The gun deck is large, airy, and well ventilated. The two spaces give ample quarters and berthing space—an average of about 169 cubic feet per man.

The water supplied by the distilling plant is of sufficient quantity and of good quality. There are two evaporators and two distillers capable of making 8,000 gallons per day for boiler purposes, or 5,000 gallons per day for drinking purposes.

The heating system gives a plentiful supply of heat. Some of the fixtures are of bad design, especially the base heaters running around the gun deck, engineers' workshop, and officers' quarters.

The crew's galley has been improved by taking out the overhead smoke pipes. The dough trough and bread lockers should be removed from the galley. This would give more room and better ventilation, as in warm climates it is too hot in this space for the proper mixing of bread. The officers' galley is satisfactory.

The food has been of excellent quality and sufficient quantity. The introduction of the general mess system has greatly improved the food aboard ship. The ice and cold-storage plant has been fairly satisfactory. The ship should have a 2-ton ice machine, as in tropical weather the present 1-ton machine is not adequate.

The water-closets for the crew are situated in the forward compartment on the gun deck, one on each side, with a separate compartment for the chief petty officers. They are ample in size and well ventilated. The drainpipes were replaced by larger ones, which has greatly improved conditions. There are two closets for the wardroom officers and two for the warrant officers; they are of bad design and continually out of order, and should be replaced by those having a more adequate flushing system.

The bathing facilities for the officers are excellent, there being two bathrooms for the wardroom and one for the warrant officers, with tub and shower. The crew have six salt-water showers, situated in the manger. The firemen's wash rooms, two in number, are situated, one on each side of the engineers' compartment, on the berth deck; they answer their purpose very well. The ship is well lighted throughout by electricity. The quarters of the crew and officers are very good, especially the former, as they are very large and airy for a ship of this size.

The sick bay is situated on the port side of the gun deck forward, in the second compartment. It is badly situated and is very noisy, as it is over the engineers' workshop and between two 5-inch guns, while there is a large hatch and the scuttle butt in front of it. It is too small, as there are only three standing bunks, which are not enough for a ship with a complement of 320 men. There is no operating room. The bathroom adjoins the sick bay and is very satisfactory. The dispensary is situated in the same compartment, but on the opposite side, and is large and well arranged. The surgical outfit is very complete; the only thing additional suggested is an Arnold's sterilizer.

This ship should be fitted with a steam disinfecting chamber, which could be installed in a convenient place in the engineers' compartment and would take up little room.

REPORT ON THE U. S. S. CHICAGO.

By F. M. Furlong, *Passed Assistant Surgeon, U. S. Navy.*

The ventilation of the berth deck has been improved by the installation of 6 electric blowers; still in the Tropics the starboard and port alley ways are unfit for berthing space, notwithstanding the changes made. An exhaust ventilator would improve the forward firemen's wash room, as is the case in the after wash room, which is provided with a ventilator.

There is a lack of ventilation of the gun deck, not noticeable in fair weather, but very marked in rainy or bad weather when the hatches are battened down and the gun ports are closed.

Two new cowl ventilators have been installed for the engine room. Six wind sails have greatly added to the comfort of the engine rooms, forward berth deck, sick bay, after platform deck, and the wardroom.

The evaporators which were formerly located in the engine room, resulting in additional heat in that locality, have been removed to the port side of the berth deck. This is an improvement over former conditions, except in the Tropics, when this part of the ship becomes almost uninhabitable from the heat. They should be removed to the spar deck, forward of the after smokestack.

The cold-storage plant is practically the same, the ice machine being on the port side and the cold-storage rooms on the starboard side; the latter were thoroughly overhauled. There is only one ice machine, which is not sufficient to do the work expected of it in the Tropics. As a result there has been a considerable loss of fresh provisions.

The defects of the sick bay are about the same as formerly reported, the most objectionable feature being that it contains the entrance to the forehold, which has to be opened frequently. Four folding bunks, increasing the total to 8, have been installed, and are highly efficient. When these bunks are down and the forehold is opened, it is not possible to use the operating table. The bathroom and water-closet are well located, but the closet has caused considerable trouble by being frequently out of order. The medical storeroom is well located and convenient.

REPORT ON THE U. S. S. MONTGOMERY.

By J. E. Page, *Passed Assistant Surgeon, U. S. Navy.*

The *Montgomery* has cruised principally in South and Central American and West Indian waters. In the West Indies she visited Porto Rico, Culebra, Santo Domingo, and Cuba.

On March 18 the ship sailed for Colon, where she remained until August 10. During the stay in this port no liberty was given to the men, except to the petty officers, and they were required to be on board at 5.30 p. m. The officers were required to be on board at 6 p. m., except on special occasions when they were permitted to remain over until 10 p. m.

Excepting a few cases of tertian malarial infection, there was no sickness out of the usual order. No epidemic of any description existed in Colon, and in Panama there was only one case of yellow fever. The ship was anchored about 800 yards from shore, and only occasionally were mosquitoes noticed on board, these being the ordinary salt-water variety (*Culex sulicctan*). The use of netting was never found necessary, but it was employed as a precaution in cases of fever.

The health of the officers and crew was excellent during the entire period of our stay. Some of the men showed the effects of life in the Tropics, as evidenced by anæmia and successive crops of boils, but these cases were comparatively few and mild in character.

The sanitary condition of the ship has been as good as could be expected under the circumstances. The men have slept on deck, under cover as far as possible, on account of inadequate accommodations below. A shelter deck was built amidships on the beams forming the skids for boats, and was made waterproof by being covered with canvas and painted.

Hammock hooks were put up under this deck (which was built on each side of the fore-and-aft bridge, level with it), and swings thus provided for some 50 men. In this way enough covered space was provided for all hands.

Fresh provisions were obtained for the men, but the meat had to be eaten the same day as slaughtered, and was tough in consequence. Permission was obtained to purchase 250 pounds of ice daily, which added greatly to the comfort of the men. This ice was made by the Panama Railroad Company from distilled water, and was pure. Fruit was allowed, but no vegetables, except those to be cooked.

It is recommended, should this ship be again commissioned, that an ice machine and cold-storage room be placed on board, where there is ample space for both on the port side of the gun deck forward.

The ventilating system of the ship should be changed. There are 4 Sturtevant electrical blowers, 2 forward and 2 aft, on the berth deck, which work on the exhaust system. These would probably have given more satisfaction if the dynamos had been driven at full speed, which was not done on account of constant breakdowns. The blowers themselves seem to be sufficient, and, with the supply system, would answer every purpose.

The firemen's wash room is inadequate. There are about 80 men who are using it frequently, and most of the time there is from 4 to 6 inches of dirty water on the floor. This room drains into a tank in the coal bunker, which is supposed to be pumped out from the engine room, but when this is not done the water backs up in the wash rooms.

The old style water-closets should be replaced by modern ones, as those now in use are constantly out of repair. One of the bathrooms is entirely too small, and should be replaced by a shower.

REPORT ON THE U. S. S. CHATTANOOGA.

By R. T. ORVIS, *Surgeon, U. S. Navy.*

The ship was placed in commission at the navy-yard, New York, October 11, 1904. Several trips have been made to sea to test the machinery, and to Newport, R. I., for the trial trip.

The health of the officers and crew has been excellent; no epidemic or contagious diseases occurred. The medical outfit and facilities for treating the sick are excellent. The medical storeroom space is ample. The dispensary is well equipped and is situated on the gun deck forward on the starboard side, just abaft the forward 5-inch gun. The sick bay is directly opposite on the port side; and is furnished with 6 standard portable bunks, 2 of which are kept unslung to make room for the operating table. The bathroom is just abaft the sick bay, and contains a tub, shower, water-closet, and wash basin, supplied with hot and cold fresh and salt water.

The scuttle butt is amidships, between the sick bay and dispensary. In consequence there is considerable noise in close proximity to the sick.

Fresh water is supplied by two evaporators and two distillers, and is generally of excellent quality and sufficient in quantity.

The bathing facilities for the deck force consists of six shower baths situated on the gun deck in the manger. Those for the engineer division consist of four shower baths and two wash rooms, situated on the berth deck in the same compartment as the evaporators, hence they are very hot and stuffy, and the drainage is poor, the waste water not running off properly. All shower baths are supplied with steam for the purpose of heating the salt water. Fresh water is served out regularly. The ventilation of the ship is effected by sixteen sets of Sturtevant blowers of different sizes, eight of which supply and eight exhaust. The engine room, dynamo room and steering-engine room have both supply and exhaust blowers, while the storerooms, magazines, and lower parts of the ship have the supply system only. The berth deck, wardroom, and living spaces have the exhaust system only. All the living spaces should have the supply as well as the exhaust system. The storerooms should have a vent whereby the air could escape after being blown in.

The ice machine is a 1-ton dense-air machine, and is not large enough to supply the needs of the ship. It should be capable of keeping at a proper temperature the cold-storage rooms, of cooling the water in the scuttle butt, and making ice. The present machine can not keep the water in the scuttle-butt cool even in this climate in the winter, and at the same time keep the temperature in the cold-storage rooms below the freezing point.

The ferric-oxide compound used in painting the decks is very unsatisfactory. It requires four hours to dry, during which time the men must be kept off the decks. It rubs off easily when walked on or mopped up, so that it must be renewed every week. It can only be kept properly cleaned by daily scrubbing with soap. It does not compare in appearance with the shellac formerly used.

REPORT ON THE U. S. S. ILLINOIS.

By Richmond C. Holcomb, *Passed Assistant Surgeon, U. S. Navy.*

During the year the health of the crew has been excellent. There has been no epidemic on board.

Many of the sanitary defects reported last year have been wholly or in part corrected. In the sick bay a drainpipe was connected with the two port-side basins, so that they now drain overboard instead of into copper buckets as formerly. The method of doing this, however, is defective, since the drain from these basins leads into the drain from the crew's head. The pipe is trapped close to the basins and leads some 12 or more feet to the drain from the crew's head. There is no air vent to prevent syphoning. A check valve was placed in the basin drain close to the main drain. At sea and in port a strong ammoniacal odor at times pervades the sick bay, which comes from the drain of the crew's head, and to prevent which it will be necessary to keep the valve in the drain closed at all times except when the basins are in use. A tank has been placed in the sick-bay bathroom, so that when the water is turned off from other parts of the ship a supply is still available there.

An attempt has been made to remedy some of the conditions which have made the midship section unbearable in tropical waters. This section contains the rooms of the junior and warrant officers. The motive power of the two large after-blowers has been changed from steam to electricity, which will do much toward reducing the temperature here, but the air supply for these blowers is still drawn from abaft the smokestacks. During the spring repairs at New York a wooden floor was laid in the staterooms of this passageway and in the warrant officers' mess room. Conditions could be further improved by devising some means of making a free ventilation in the space between the steel and wooden decks. In the machine shop two electric blowers, each with several air conduits, have been installed, one in the starboard and one in the port compartment. The temperature in these compartments has been reduced. In the junior officers' mess room two air conduits have been led from below, and a supply of air is now forced into the room. The supply is drawn from the ventilators abaft the smokestacks, so that in the Tropics the same heated air supplied to the after part of the berth deck will be supplied to this room. These two ventilators have greatly improved the conditions which formerly existed there. It is a grave defect in any system of ventilation to draw the air supply from any other source than that which will insure a pure, fresh, clean supply. Air drawn from the area close to and abaft the smokestacks will not meet these conditions.

REPORT ON THE U. S. S. OHIO.

By J. S. Taylor, *Passed Assistant Surgeon, U. S. Navy.*

The *Ohio* is a twin-screw armored battle ship, built by the Union Iron Works, San Francisco, Cal., and commissioned October 4, 1904. Her length over all is 393 feet 10¼ inches, between perpendiculars 388 feet. Her extreme beam is 72 feet 2½ inches; displacement at normal draft of 23½ feet is 12,508 tons. She has 320 water-tight compartments, of which 22 are in the double bottom. A 36-inch wide cofferdam between berth and protective decks extends on each side from the diagonal armor bulkhead to the end of the vessel.

The bridge deck extends between fore and aft turrets, and on it are the engine-room hatches and the electric boat cranes.

The upper deck extends from after turret to bow. On it are located crew's and officers' galleys, bakery, junior officers' staterooms (2), mess room, bath, the chief of staff's quarters, and the offices for ordnance officer and executive officer.

The main deck is coextensive with the length of the ship and carries turrets and casemate. The turrets each hold two 12-inch guns. The casemate starboard and port batteries consists of five 6-inch guns each, while outside the casemate forward there is a 6-inch gun on either hand. Officers' water-closets, warrant officers' quarters, armories, pay office, drying rooms, and crew's water-closets and baths are located on this deck, which affords the largest space on the ship.

The berth deck contains the admiral's and captain's quarters, wardroom mess room, and eight rooms on each side, two wardroom baths, engine-room hatch, various offices, cold-storage rooms, ice machine, petty officers' quarters, distiller room, and firemen's wash rooms, two brigs, machine shop, printing office, band room, crew's berthing space, and the sick bay, dispensary, etc. Beneath the berth deck the protective deck slopes away forward and aft, leaving space for storerooms.

Below the protective deck are the engine rooms, dynamo rooms, fire rooms, blower rooms, store rooms, magazines, shell rooms, handling rooms, ammunition passages, bunkers, submerged torpedo room, trimming and fresh-water tanks.

There are two main engines, four cylinder, triple expansion, vertical inverted, direct-acting type, placed abreast, but in separate water-tight compartments. There is one main condenser for each main engine. The boilers are 12 in number, of the Thornycroft type, placed in four water-tight compartments, so arranged as to give one small and one large fireroom in each compartment. Gratings about the height of the steam drums form passageways between the firerooms. The Howden system of forced draft is fitted to each boiler. The total bunker capacity is 2,144.18 tons of coal.

The ship possesses, on starboard side of berth deck forward of the diagonal armor, one Allen dense-air ice machine capable of producing the cooling effect of 2 tons of ice per day. Cooling pipes run to the ice tank, cold-storage plant, and scuttle butt.

The electric generating plant consists of four 32-kilowatt and four 50-kilowatt generating sets, in all representing about 430 electric horsepower. The general installation includes some 850 incandescent lamps, 4 searchlights, 2 Ardois signaling sets, 2 diving lamps, 4 one-fourth horsepower electric ventilating sets, 40 one-twelfth horsepower and 5 one-sixth horsepower electric fans. There are further installed throughout the ship 122 motors, furnishing power for boat, ammunition, and hatch hoists for turret turning, torpedo air compressors, etc.

The distilling plant, located just forward of the engine-room hatch and opening into it amidships on the berth deck, consists of 4 evaporators and 2 distillers, having a united capacity of 16,000 gallons of potable water per twenty-four hours, at a temperature not exceeding 90° F.

The drainage system consists of a main drainpipe of 15-inch galvanized steel tubing and of a secondary drainpipe of 5-inch galvanized steel tubing. The former runs above the inner bottom on the starboard side from forward engine-room bulkhead to after part of forward fireroom. The latter runs above the inner bottom on the port side from after-port engine room to forward bulkhead of forward fireroom.

Ventilation is accomplished by electrically driven blowers drawing in fresh air from cowls, which extend above the awnings on deck. The living spaces are all on the supply system, but the crew's water-closets have one No. 2 exhaust blower fitted on each side. The officers' water-closets have one No. 1 exhaust blower. Foul-air ducts lead up from starboard and port upper dynamo rooms, and each is fitted with a No. 5 induction blower.

In estimating the available cubic air space per man the gross total of the air space in all compartments where hammock hooks are found was the basis of calculation. This includes passages on berth and splinter decks abreast of the engine room, at one or both ends of which blowers play, but the central portions are uninhabitable, owing to the high temperature prevailing. These places are therefore deserted, and the men billeted in them go to other localities to sleep on the decks beneath other men's hammocks, giving to certain parts of the ship a congested population and lessening the amount of available respirable air per man. The main deck inside of the casemate represents the largest part of the berthing space in one locality. Its ventilation is by natural means only. When the 6-inch gun ports are closed, which is necessary in any but the calmest weather when steaming, and when the fore and aft water-tight doors are closed, we have the air supply for some 385 men enjoying little or no renewal.

When blowers are running the sick bay and dispensary are very well ventilated. Unfortunately there is a serious defect in one detail of the ventilation system as actually operating under service conditions. The air for the blowers is derived through ventilators on the forecastle. In rough weather these ventilators are taken down and hatches replace them. On the recent final acceptance trial these ventilators were removed the first day out for the firing from the forward turret and remained down for four days, owing to heavy weather. By the end of the first airless day the sick bay, which harbored only seven or eight patients, became very foul.

One of the drainpipes from the crew's water-closet overhead runs through the sick bay, and it is feared that leakage will take place when the ship has had a year or two of service and has been shaken about.

The provisions for the sick on this vessel are good. The bathroom contains a water-closet, tub, washbowl, and shower, hot and cold, salt or fresh water being available. The deck is covered with white tiling. There is room on the cofferdam for the installation of a steam sterilizer, Kny-Scherer pattern, such as is furnished to hospitals, and this would materially improve the surgical and sanitary equipment of the ship.

The sick bay is a fairly spacious and commodious compartment forward on the berth deck, containing 14 folding bunks arranged in two tiers. It contains, further, a transom, mess table, and writing desk and a suitable linen locker. The deck is shellacked. A manhole on the starboard side gives access to a storeroom below. This has a cubic air space of 940 cubic feet, and is conveniently fitted with lockers and shelves. Its ready accessibility and generous dimensions make it admirably adapted to the purpose assigned. The operating room contains a washbowl, instrument cabinet, operating table, shelf stand, and fittings, and is floored with white tile. Hot and cold water are always available. Unfortunately both the bathroom and the operating room washbowls and the water-closet drain were put in without the proper air-vent pipe, so that the least motion of the ship causes water to be thrown out of the sink holes into the compartment, making a discouraging state of affairs. The operating room is insufficiently lighted, and for use at night it is recommended that a socket suitable for connecting up a cargo light be let into the deck directly over the operating table.

The dispensary is ample in size, well ventilated and lighted, and could not well be improved on. The cofferdam makes a convenient shelf for scales, pill tile, etc., and would accommodate the surgical-instrument cabinet.

The wash rooms provided for the crew contain 16 basins and 2 showers, but no tubs. There is a wash room for chief petty officers containing 1 shower and 4 basins and 1 for the mess attendants. The crew's head contains 22 seats, 11 on each side. This is inadequate for a force of 700 men.

The bathing facilities for the engine-room force consist of 3 wash rooms, containing 22 bowls and 6 showers in all.

REPORT ON THE U. S. S. TOPEKA.

By Karl Ohnesorg, *Passed Assistant Surgeon, U. S. Navy.*

The *Topeka* during the past year has been attached to the Training Squadron, and has received for training during the year 586 apprentices. These were received on an average of 150 at a time. They are given a course of training and instruction extending over a period of forty-eight working days, at the end of which, after a ten days' leave of absence, they are sent to the receiving ships for distribution to the various ships of the service. All of those received on board were taken from the training station at Newport, R. I., and hence we received only those who have been under observation and were in good physical condition. There was a surprisingly low percentage of sick days among them; this perhaps was due in part to the low cruising record of the ship during the greater part of the year.

The ship's complement as a training ship is now 175, and when to this are added 150 apprentice seamen under training it brings the total number of enlisted men up to 325, an excess of 175 above her complement, which results in overcrowding. Nevertheless, the sanitary condition of the ship is excellent, with the exception of a few defects noted below.

The gun ports on the gun deck leak badly and in rough weather the deck is usually damp or awash. As this is the largest berthing space on board, and as it is the only place of refuge for the crew when driven below by the elements, the above condition becomes not only a source of ill-health, but also one of exceeding discomfort to the men.

The only method the crew has of bathing is from buckets on deck; hence the bathing is only incompletely done, especially in cold weather. There should be at least two shower baths installed.

The iron troughs in the ship's head should be replaced. They are made of iron and lined with cement, which from long use has become disintegrated and presents an uneven surface, on which, notwithstanding constant flushing, excreta and filth collect, and which is cleaned only with difficulty. Porcelain-lined troughs would remedy this condition and insure cleanliness in this most important part of the ship.

The two brigs, situated in the extreme forward end of the ship, are poorly placed and should be removed. They are too cold in winter; during our recent stay at Newport the temperature in them averaged between 35° and 45° F. The outboard walls of these compartments consist merely of the skin of the ship, and, as a consequence of this, in cold weather, owing to the sweating of the ship, they are damp, and the water thus accumulating has to be frequently removed.

The condition of the ship's storerooms and holds is excellent. They are well ventilated and easily kept dry and clean.

During the ship's recent visit to the navy-yard, Boston, the efficiency of the sick bay was greatly augmented by the installation of a steam heating apparatus for hot water. A lead was also introduced into the bath tub for the sick. The lead to the ice machine was tapped, which insures service at all times. Three good-sized galvanized-iron lockers were placed in the compartment, and afford stowage room for the clothing of those admitted to the sick list, and also for the necessary gear in use about the sick bay.

REPORT ON THE U. S. S. CASTINE.

By E. M. Blackwell, *Passed Assistant Surgeon, U. S. Navy.*

This ship was commissioned at the League Island Navy-Yard, November 12, 1903.

The health of the crew was very good during our cruise along the coast of Panama. Caledonia Bay is a fine harbor, and there were excellent opportunities for boating and bathing. The health at Colon and along the coast was fair. There was the usual amount of malarial fever and dysentery, but no yellow fever or bubonic plague. The crew was not given liberty. The ship was very free from mosquitoes, and only became infested with them once in consequence of having to lie alongside the dock at Colon all night while coaling. They were of the *Anopheles* and *Culex* varieties.

The last of February the ship steamed to Chiriqui Lagoon, on the north coast of Panama, for target practice. There were several villages on the lagoon, from which fresh meat, fruits, and vegetables were obtained. During the target practice there quite a number of cases of otitis-media developed, most of which were old cases exaggerated by the gun fire.

The ship left Colon the last of March for Pensacola, Fla., and remained there until the last of April. The men were given liberty, the first they had had since the ship left Philadelphia in December, 1903. The weather was cool and bracing, and had a good effect upon the crew. The health of the city was good.

On November 13 the ship arrived at Rio de Janeiro, Brazil, where we found the city in a state of riot on account of the objection of the people to compulsory vaccination, and all business was at a standstill. There were in the city many cases of smallpox and bubonic plague and a few cases of yellow fever, all of which had been isolated in hospitals and camps outside the city. The city appeared to be in a dirty and unsanitary state.

The excessive motion of the ship and the poor accommodations and deficient berthing space have made it very disagreeable for the officers and men alike. This ship is not fitted for such extensive cruising as she has done in the last year.

In the officers' staterooms it is so warm at sea in the Tropics that none of them sleep below. On the berth deck forward at sea the thermometer frequently registers over 100° F.

The health of the crew has been good, considering all the disadvantages under which the men have had to live.

While the forward compartment of the berth deck, which is used as a sick bay, has, perhaps, better ventilation than any other available place, there is no privacy for the sick and no isolation from the rest of the crew, consequently the sick are much annoyed by the noise and interference of others.

The following changes are recommended:

That the after-ventilating system be changed to supply in place of exhaust.

That shower baths be installed for the use of the deck force of the ship, as they have no facilities for bathing except deck buckets and the deck hose, which have to be used on the open deck.

That an ice machine with cold-storage room be installed. As the ship is cruising in the Tropics and is most of the time at out-of-the-way places where fresh provisions can not be procured, the officers and men are subjected to great discomforts and inconveniences from lack of them.

That the stateroom on the port side of the warrant officers' quarters, which are now occupied by the chief petty officers, be made into a sick bay.

That the warrant officers' wash room, which is now used for storing hammocks, be made into a dispensary and water-closet.

That the medical storeroom be changed from its present location under the starboard warrant officers' stateroom to the storeroom under the port warrant officers' stateroom.

By making these changes the sick would not be bothered by the routine duties of the ship, and cases of infectious diseases could be isolated from the rest of the crew.

REPORT ON THE U. S. S. PETREL.

By CHARLES H. DELANCEY, *Passed Assistant Surgeon, U. S. Navy.*

This vessel was on duty at Panama and Darien Harbor, Panama, during January, February, and March, 1904. From there she proceeded to San Francisco, Cal., and thence to Dutch Harbor and Kiska, Alaska, where she remained until autumn, arriving in San Francisco again September 28. She afterwards sailed for Magdalena Bay, Mexico, for target practice, after which she proceeded to Honolulu, Hawaii, arriving December 8, and remained as station ship.

The health of the crew while at Panama and Darien Harbor, Panama, was excellent. There were no cases of malaria present. The vessel was anchored with the other vessels of the Pacific Squadron several miles from shore. The crew was not granted liberty.

While underway in the Tropics the temperature in the fireroom has been 160° F. repeatedly. The high temperature of the fireroom in the Tropics is very detrimental to the health of the force employed there. The present system of ventilation is inadequate and should be improved.

Among the alterations made at Mare Island was the conversion of the forward part of the wardroom into a chief petty officer's space with a great reduction in the size of the wardroom and of the officers' rooms. The chief petty officer's space is too small to accommodate the twenty men assigned to it. The wardroom country is too small for comfort in the Tropics, and has not even the benefit of electric fans. There are 6 rooms in the wardroom. The after rooms are very small and uncomfortable, with insufficient stowage room for clothing, etc. Larger and more convenient rooms should be provided for commissioned officers since they are required to live in them.

While in Alaska the health of the crew was very good, but the men were very uncomfortable because the berthing space is not sufficient to accommodate a crew of 129 men during such cold, stormy weather as prevails in Kiska.

Many men were required to sleep under the forecastle, which is not inclosed, but only protected from the rain and cold by a canvas screen.

The arrangements made for heating the forecastle are very inadequate. While the *Petrel* was stationed at Kiska the temperature averaged about 42° during the day, being colder at night; two days out of three were rainy, and nearly every day foggy. The berth deck during the daytime was very foul and uncomfortable.

The heating system of this vessel is very inadequate. The radiators are too few in number, too small, and some are badly located.

A commissary store has been opened and is appreciated by the men.

REPORT ON THE FIRST TORPEDO FLOTILLA.

By F. M. BOGAN, *Passed Assistant Surgeon, U. S. Navy.*

On January 1, 1904, the flotilla was at San Juan, P. R., having completed the first leg of the long trip to the East.

It was not thought expedient to give liberty at Las Palmas, Canary Islands. This was a great hardship, as nearly everybody was worn out after the long and tiresome twelve days run from San Juan. The pitching and rolling, incident to bucking a strong northeast trade wind, and the vibration which is always present on these vessels when under way, added to the cramped quarters, made life almost unendurable for the enlisted force.

The city of Las Palmas, with a population of 40,000, is well built and very healthy, and has a sober, industrious, and sturdy population.

Upon our arrival in Gibraltar we were informed by the British authorities that only 50 men from foreign men-of-war were allowed ashore at one time. The *Buffalo* was given 25 and each of the destroyers 5, so that as we stayed in Gibraltar only three days four-fifths of the men did not get ashore until liberty was given in Algiers, nearly a month after we had left San Juan.

Algiers, the capital of Algeria and the French North African possessions, is situated at the foot of the Sahel Mountains and takes the form of an amphitheater, overlooking a magnificent bay. Its white houses rise one above the other in triangular form, and the apex is crowned by a citadel. The weather was very disagreeable during our stay there.

Malta is the largest and most important of the three islands composing the Maltese group. The city has a population of 50,000, exclusive of the military, who probably number as many more. It is a flourishing trade center. The old hospital of the knights, with its hall over 500 feet long, is now used by the English as a military hospital. A very imposing new naval hospital, situated on a bluff overlooking the harbor, has one of the most admirable locations. The English surgeons all spoke of the difficulty of diagnosing between Malta and enteric fevers during the early stages. They state that in a few cases they have found the micrococcus militensis in the peripheral circulation. The health of the flotilla was excellent during our ten days' stay, and no case of fever resulted.

During the run from Malta to Port Said the worst weather of the whole trip was encountered. When about 100 miles off the Tripoli coast a heavy sandstorm from the Sahara Desert swept over the sea, obscuring everything around with its fine, yellowish dust. It was accompanied by a cold wind which freshened to a gale, with heavy swells and high seas. This necessitated a continued reduction of speed, until the vessels were making no more than steerageway in the face of the storm. The vessels labored heavily, the steep sea coming aboard in heavy masses and sweeping the decks continually. It was remarkable that no one was lost overboard.

The trip through the Red Sea was, contrary to expectations, not unpleasant, and there were only two prostrations from the heat. Four days were spent at Aden, and then a pleasant run of six days brought us to Bombay, the principal seaport of Western India.

Bombay is one of the most remarkable, as well as one of the largest, cities on earth, and the native town is said to be one of the most characteristic in India.

The public buildings are magnificent, and the market, famed throughout the East, is almost above praise. Meats can not be purchased after 6 o'clock in the morning.

Bubonic plague, smallpox, and cholera were epidemic in Bombay, so that no liberty could be given. Rigid inspection of all food was advised, and no washing allowed to be taken ashore. There were about 150 deaths a day from plague in the city proper.

Haffkine's prophylactic is being used extensively in Bombay and its Presidency with good results, but the plague mortality during the past year is much greater than in any year since the beginning of the outbreak, in 1897. During these seven years there have been over 1,000,000 deaths from plague in the Presidency of Bombay, with its population of about 18,000,000. Before leaving Bombay a personal inspection of every officer and man in the flotilla was made by the health officer and myself, and a clean bill of health was given. Yet when we reached Colombo we were put in quarantine, but the officers and stewards, the only persons who had been allowed ashore in Bombay, were given permits to go ashore.

The third day after leaving Colombo, and nine days from Bombay, the medical officer was called aboard the *Bainbridge*, where a patient was seen having a temperature of 104.6°, with a very faint papular eruption on face, arms, chest, and abdomen. The patient was transferred to the *Buffalo*. His clothing and bedding were boiled, and the crew revaccinated. Upon our arrival at Singapore the patient was moved to the pesthouse, and subsequently died from confluent variola. He had been ashore on duty in Bombay. No other cases developed.

The climate of Cavite does not impress me favorably for ships of this type, because of the intense heat and excessive humidity. It may be remarked that the destroyer and torpedo-boat officers and enlisted men in the leading navies of the world receive extra pay, colloquially known in the English service as "hard-line money."

The present force at the disposal of the medical department of the flotilla is, in my opinion, inadequate. In addition to the medical officer, there are a hospital steward and a hospital apprentice, first class, attached to the flotilla. The ships of the flotilla are very frequently separated, sometimes for a week at a time. It is recommended that a hospital steward be assigned to duty on each ship.

Until the arrival of the flotilla in Cavite, on the 14th of April, 1904, the health of the personnel was good. The men, already worn-out by the long and trying journey, and arriving at Cavite at the most unfavorable season, readily succumbed to catarrhus epidemicus and a peculiar type of myalgia.

The change to Hongkong and Shanghai was most beneficial. Of the 17 officers who left Norfolk with the flotilla 1 was invalided home, 1 detached because of ill health, and 2 others, after being detached, had to be sent to the naval hospital, Yokohama.

One case of febris enterica, under treatment while at Shanghai, made a good recovery. A very refractory type of diarrhea is prevalent in Shanghai and other Chinese cities. It follows the ingestion of uncooked fruit and vegetables.

The following recommendations are made:

(*a*) That quarters ashore be provided for the officers and men attached to torpedo boats and destroyers on this station.

(*b*) That ships of this type spend the summer in some cooler climate than that of Cavite.

(*c*) That the head be removed from its present faulty position and a new one erected on deck.

(*d*) That while on this station no one be required to serve continuously for more than one year on ships of this type.

REPORT ON THE U. S. S. HELENA.

By H. F. STRINE, *Assistant Surgeon, U. S. Navy.*

During the year this ship has visited the following places in China: Niuchwang, Shanghai, Nimrod Sound, Wenchow, Fuchau, Amoy, Swatow, Hongkong, Canton, and Nam Sha Bay. On December 14 the *Helena* arrived at Cavite, P. I., where she will receive new boilers and undergo extensive repairs.

Notwithstanding the fact that the crew has been exposed to sudden changes of temperature, ranging from the frigid climate of Niuchwang to the excessive heat and moisture of Canton, the general health has been exceptionally good.

Bubonic plague, smallpox, and cholera have been endemic at Swatow, Amoy, Hongkong, and Canton, but not a single case has occurred aboard ship. At

Amoy and Swatow liberty parties were not permitted to enter the native cities, there being ample space for all necessary recreation in the foreign concessions, which are, as a rule, free from these diseases. At Hongkong fatal cases of plague occur every week among the Chinese coolies. The city is under excellent sanitary supervision, and it is very rare indeed that a foreigner contracts the disease.

During the months of July and August the climate at Canton is exceedingly hot and humid, making life for Europeans and Americans very uncomfortable. The crew suffered greatly with prickly heat, various forms of impetigo and mycotic dermatitis. Several cases of tinea imbricata developed, which yielded to strong application of chrysarobin ointment. It is believed that chow dogs taken aboard ship are to a great extent responsible for the occurrence of those annoying skin lesions. Several examples of direct infection came under observation, and it is urgently recommended that the practice of allowing these dogs on board ship be discontinued.

Cases of intermittent malarial infection were quite numerous during our stay in Canton. Typhoid fever prevailed among the foreign population of Shameen, but the ship's crew escaped infection. Dysentery, apparently of the Shiga infection, was also frequently discovered in the foreign settlement.

Venereal infection among the sampan women is the curse of Canton. The crew suffered greatly from chancres, chancroids, and gonorrhea; two, three, or more cases reporting daily for treatment.

The health of the crew while at Hongkong was excellent.

The sick bay and dispensary are spacious, well ventilated, and all that can be desired in a ship of this size.

REPORT ON THE U. S. S. EL CANO.

By J. B. De Bruler, *Assistant Surgeon, U. S. Navy.*

This vessel is a converted Spanish gunboat of 560 tons displacement; maximum draft, 12 feet; length over all, 158 feet, and at water line. 156 feet; and extreme beam, 25 feet. The battery consists of four 4-inch and four 6-pounders, and she carries a crew of 6 officers and 101 enlisted men. Her duty is on the Yangtse River, China, cruising between Shanghai and Hankow.

There is no method of artificial ventilation aboard with the exception of a few electric fans. The air ports are located so near the water line that they can not be kept open while the ship is not at anchor, nor in moderately rough weather. The crew's berthing space is forward and has a capacity of 5,460 cubic feet. This space is occupied during the night by 70 men, which allows each man 78 cubic feet. Four large ventilators open into this space, one forward, with a diameter of 10 inches, one aft with a diameter of 20 inches, and two laterally, each with a diameter of 20 inches. The forward and lateral ventilators also furnish air for the storerooms by means of smaller extension tubes. Two hatches also open on the berth deck, one forward, 3 feet 2 inches by 4 feet 1 inch, and one aft, 3 feet 2 inches by 5 feet 2 inches. This makes a total ventilating area of 36.38 square feet, or one twenty-second the deck area. Allowing 3,000 cubic feet per man per hour, the 70 men would require 210,000 cubic feet per hour, which, supplied through the ventilators and hatches, would give a velocity to the air current of 1.6 feet per second, or 5,772 feet per hour. When the air ports, of which there are 18, can be opened, the ventilation is good if there is any breeze. The cabin is aft and is well ventilated. The deck amidships is screened in with canvas, allowing ample space for the remainder of the crew. The ship is well heated by steam coils. The electric-light system is efficient. All water aboard is distilled. The ship is provided with an Allen dense-air ice machine, which has a capacity of one-half ton per day and in addition cools the drinking water.

The average temperature of the fireroom is 122.5° F., with a maximum temperature of 160° F. The average temperature of the engine room is 100° F. There is no artificial ventilation, the air being supplied by two ventilators. The crew's closets are situated forward on the main deck, one on the starboard and one on the port side. As they are well above water line they are easily flushed and are in good sanitary condition. The urinals are just forward of the closets and are uncovered except by a canvas curtain. The men's washroom is situated on the main deck on the starboard side. The floor is cemented and well drained and is in good sanitary condition. There is no space set apart for the sick, patients swinging in cots on the berth deck. A small room opening on the berth deck is used as a dispensary. The storerooms and bilges are uniformly dry and free from odor.

Considering the unfavorable conditions existing ashore, the crew is remarkably free from severe intestinal disturbances. Of all cases admitted to the sick list malarial infections are the most common, comprising 34 per cent of the whole number. As a whole the crew is vigorous and healthy, especially during the winter months. Among the men who have served on this station for some time there seems to be a tendency for minute abrasions to become superficially infected, and then to settle into a sluggish condition which delays healing for weeks.

REPORT ON THE U. S. S. BOSTON.

By Otto Kohlhase, *Assistant Surgeon, U. S. Navy.*

The ventilation of the whole ship is bad, due to the faulty distribution and location of both exhaust and supply pipes. Strong currents of air are directed from above downward to where the exhaust pipes are located. There is much overcrowding in the marine quarters and those designed for the petty officers.

The sick bay is well located, but poorly ventilated, and the beds therein are poorly mattressed. A small electric fan should be provided for the bathroom of the sick bay. A rifle rack attached to the outside of the steel bulkhead of the sick bay has caused great discomfort to patients during its use.

Physical exercise has been taken regularly by the crew and gymnastics are popular aboard.

During the ship's stay at Panama no general liberty has been granted owing to the prevalence of yellow fever. Since the 22d of July 14 cases have occurred, with 3 deaths. The infected center seems to be in the Plaza Santa Ana and thereabouts. The yellow-fever mosquito has been found on board this ship.

On account of no liberty having been granted the crew for nearly two months, the general health of the personnel is far below par. The anchorage off Panama being about one mile from the nearest point of land has made it possible for mosquitoes to be wafted aboard; and such has actually taken place. Four cases of malaria have broken out. The tertian parasite was found in 3 cases and the crescentic organism in one. About 80 per cent of the natives ashore are infected with the malarial organism. Cases of leprosy are becoming numerous among the lower classes in Panama.

REPORT ON THE U. S. S. SUPPLY.

By C. C. Grieve, *Assistant Surgeon, U. S. Navy.*

During the present year the *Supply* has made two cruises from the island of Guam; one to Mare Island, Cal., touching at Honolulu and Midway Islands, and the other to Shanghai, China, touching at Hongkong and Manila en route. The remainder of the year has been spent at her moorings in the harbor of San Luis de Apra, Guam.

On the main deck are the governor's reception room, dining room, office, and pantry; the captain's cabin, stateroom, pantry, office, and bath. Amidships are the governor's galley, officers' galley, crew's galley, bakery, lamp room, boilers, log room, and executive officer's office. Aft are the drawing-room, steering engine, paymaster's office, and wheelhouse.

The main deck is clean, dry, and well lighted, and well ventilated.

On the berth deck forward are the sick bay and governor's quarters, the latter consisting of 9 staterooms and 3 bathrooms. Amidships are the wardroom, warrant officers' rooms and their pantries, bathrooms and heads. Aft are the crew's space and their wash rooms and heads. The armory and brig are also in this part of the deck. This deck is also clean, dry, well lighted, and well ventilated. The orlop deck has a crew's space forward and one aft. The remainder of this deck is occupied by the dynamo, ice machine, cold storage, and the various store rooms.

The artificial ventilation of the ship is effected by exhaust and plenum systems, together with numerous electric fans. The berth deck is ventilated by four electric blowers, supplied by two 20-inch and two 24-inch cowls. The exhaust is natural. On the after berth deck, where most of the crew sleep, two fans are kept going continually.

The orlop deck is supplied by a No. 8 steel fan through a 24-inch cowl. Branch air ducts lead to the dynamo room on the port side and to the workshop on the starboard side. The entire ship is well ventilated except the engine and fire room spaces.

The heating system is an excellent one and would give a sufficient amount of heat in an extremely cold climate.

The ice and cold-storage plant works satisfactorily in every way. The ship has two Allen dense-air ice machines of 2 tons capacity each, and they supply 500 pounds of ice daily and cool four cold-storage rooms. No difficulty is experienced in preserving fruit, vegetables, and meats during the time elapsing between the departure of one transport and the arrival of the next.

The water supplied by the distilling plant has been sufficient in quantity and generally of excellent quality. The distilling plant is located on the port side of the engine room and consists of two evaporators and one distiller. The two evaporators have a minimum capacity of 4,800 gallons and a maximum capacity of 8,040 gallons per day. The distiller has the same capacity. About 1,200 gallons are sufficient for daily use. This includes fresh water for wardroom shower baths and for the daily allowance of the men.

The food is generally of good quality and sufficient in quantity. The ship is supplied with fresh fruits, vegetables, and meats once a month by the United States army transports.

The ship is well lighted throughout by electricity. Bathing facilities are excellent throughout the ship. The governor's apartments have three bathrooms, the officers have four (three tub and one shower), and the crew plenty of shower baths. Both fresh and salt water baths are supplied. The firemen's wash room is aft on the berth deck and is very difficult to keep clean.

The water-closets for the wardroom and the crew are on the port side and for the warrant officers on the starboard side of the berth deck, amidships. They are ample in size, but are situated too near the warrant officers' mess room.

Nothing can be said in criticism of the quarters, either of officers or men. Even the petty officers have rooms to themselves, and all officers have rooms that are large, dry, light, and well ventilated. The crew has plenty of well-ventilated space.

In examining the crew from time to time one can not help but notice the change in the physical condition of many of the men. After the first year the men, as a rule, begin to show physical and mental deterioration, which becomes more and more marked with the length of the stay in the island of Guam.

The sick bay is located on the berth deck in the bow of the ship. It is roomy, light, dry, and well ventilated. A small dressing room is divided off from the rest of the sick bay and can be used for operating in an emergency. The dispensary is light, well ventilated, and convenient. The sick bay contains 16 stationary bunks and 6 electric fans.

The ship's company has been almost free from venereal diseases while stationed at Guam.

The dysentery here is mostly bacillary. No amœbic dysentery has occurred on board the ship. The cases run a subacute course, with slow convalescence and marked tendency to recurrence. The slow convalescence in all cases is due to the debilitating climatic conditions, which also account for the low resistance of the tissues to pus infection.

REPORT ON THE U. S. S. MARBLEHEAD.

By J. D. MANCHESTER, *Assistant Surgeon, U. S. Navy.*

The artificial ventilation of the ship is furnished by fans, used both for supply and exhaust, and propelled partly by steam and partly by electricity. The fans which are operated by steam power should be replaced by those operated by electricity. The fans propelled by steam do not ventilate the compartments properly, are out of order one-half of the time, and furnish the compartments with air that is heated by the steam pipes. They are built to make 600 revolutions per minute, but are run only at half speed in order to preserve them.

The electric fans are in constant use. Those operated by steam are run only at night and when at sea, except those which supply the engine room, which are worked constantly. All the fans should be in use day and night.

The engineers' compartment on the berth deck, into which the dynamo hatchway opens, is, in warm weather, too hot for the men to sleep in, because of the heat from the dynamo room below. Some arrangement should be made whereby the heated air from the dynamo room can be carried to the main deck and not into the living compartment of the crew.

The heating system of the ship is by means of steam coils, and is in good working order.

The lighting is by electricity, and is satisfactory. There are two dynamos, each with a voltage of 80.

Facilities for bathing for the crew are far from sufficient. The two showers forward on the main deck, which were formerly used by the deck force, are both ineffective and should be replaced.

The firemen's wash room needs extensive altering. The porcelain basins are old, very much worn, and the drainage defective, making them insanitary. They should be replaced. The one shower furnished is not sufficient for the number of men, and there should be at least two more installed. The water supplying this one shower passes through the distilling apparatus before coming to the shower, and consequently is often so hot as to render the shower unavailable for use. The deck of the wash room is made of grooved tiling; a smooth surface would be a great improvement.

The head is situated forward on the port side of the gun deck. The porcelain trough is old, cracked, and very unsightly, and should be replaced.

The individual urinals, of which there are only three, are constantly getting out of order. A long trough with a continuous flow of water should be substituted. This would, to a great extent, remove the cause of the offensive odor, which is at present very marked. There are eight separate stalls in the head, two of which are used as urinals, leaving only six available for other use, which is not enough for the size of the crew.

The galley is on the gun deck under the forecastle. Its position and arrangement are satisfactory.

It is impossible to keep on board a supply of fresh meat for more than one day. For the proper messing of the men an ice machine and cold storage should be provided, especially when so much time is spent in the Tropics each year.

The distilling apparatus consists of three evaporators and two distillers. Usually two evaporators and one distiller are in use, the others being kept in reserve. Two thousand gallons of water per day is the average amount distilled.

The space allotted to the medical department is badly situated on the forward berth deck and consists of a sick bay, dispensary, and bathroom. The location being so far forward the least motion of the ship is very noticeable, and at sea it is impossible to open the ports. The only provision made for the sick who can not be about is one leather-covered transom. When the men are too ill to be up they must swing in their hammocks on deck, the sick bay being too small for them to swing there.

Under the sick bay is located a chain locker which is used for storing coal bags, and under the bathroom is the paint locker. This is a very inconvenient arrangement, causing constant annoyance, and at times keeping the sick bay very dirty from the coal dust, from paint getting on the deck, and from the men tracking the deck in the use of the lockers.

The ventilation is very poor; the head being directly above causes an almost constantly disagreeable odor. The sewage pipe of the head passes through the sick bay and empties below one of the sick-bay ports. The escape-air pipe from the urinals of the head also empties near the port of the sick-bay bathroom, causing a very foul odor at times.

It is recommended that the sick bay be removed to compartment 115 on the berth deck, now used by the crew, where plenty of room can be secured for a sick bay, dispensary, bathroom, and medical storeroom, and that at least four, and preferably six, folding beds be installed.

REPORT ON THE U. S. S. NEWPORT.

By F. E. CAMPBELL, *Assistant Surgeon, U. S. Navy.*

During the past year the ship has been attached to the Caribbean Squadron, and, with the exception of four months, has been in the Tropics. The health of the personnel has been excellent.

Venereal diseases and their complications and sequelæ caused nearly 35 per cent of all admissions to the sick list. San Juan, P. R., and Colon, Republic of Panama, proved very prolific sources of venereal infection. Two cases of rubella occurred six days after leaving San Juan, P. R. These cases were fortunately recognized and immediately isolated.

The ventilating system is inadequate and unsatisfactory. The natural ventilation of the gun deck in the Tropics is sufficient, but in the North, with the gun ports closed and hatch covers on, the air becomes very foul. The artificial ventilation is confined to those compartments on and below the berth deck. The exhaust system is employed, the air being withdrawn by means of two steam blowers, which are never run at their full speed, as they get out of order quickly.

The bathing facilities for the crew are insufficient and the addition of another shower would add much to the cleanliness and comfort of the crew. The firemen's washroom is well located and apparently meets all requirements.

In the crew's head there is one long trough divided by partitions into seven compartments, fitted with seats. Although there is water constantly running through this trough its sides have become corroded and roughened and retain particles of filth, which besides giving off a bad odor might be the focus from which flies, roaches, etc., could disseminate infection. This trough should be replaced by a new one, porcelain lined, the smooth surface of which would insure cleanliness.

The ship is equipped with a distilling apparatus of 2,000 gallons daily capacity. The water, with one or two exceptions, has been of excellent quality and almost free from chlorides. The water in the scuttle butt is kept always cool by pipes from the ice machine. The ice machine furnishes sixteen cakes daily, besides cooling the water in the scuttle butt.

The sick bay and dispensary, although small, are very convenient and well suited to this type of vessel. During the year a microscope and accessory outfit have been received and found of great use. Since November 1 the vessel has been at the navy-yard, Portsmouth, N. H., undergoing repairs.

New and improved water-closet fixtures have been installed in the wardroom and petty officers' water-closets. The sick bay bath has been repaired and the fresh-water tanks cemented. New seats were supplied for the crew's head and the old wire screens on the urinals replaced by new ones. The gun ports were repaired, but they continue to leak in a seaway.

REPORT ON THE SECOND TORPEDO FLOTILLA.

By R. A. CAMPBELL, *Acting Assistant Surgeon, U. S. Navy.*

The flotilla was organized in July, 1904, the following torpedo boat destroyers composing the flotilla: *Whipple*, as flagship, *Hopkins*, *Worden*, *Hull*, *Truxtun*, *Lawrence*, and *Macdonough*. In October, the *Lawrence* was detached and sent to Annapolis, the *Stewart* taking her place in the flotilla.

The health of the personnel of the flotilla was excellent during the summer and fall cruise along the Atlantic coast. Some few cases of febris intermittens developed during the stay of the vessels at Norfolk, Va. Tonsilitis also has been very prevalent, but no serious case of illness has occurred. Accidents have been of a minor character. Only one death occurred, and that was the result of an accident while the man, a straggler, was ashore at San Juan, P. R.

During the summer the vessels of the flotilla had aboard a number of midshipmen for instruction. The cruising was along the New England coast and Chesapeake Bay. Target practice was off Crisfield, Md., in October, and was devoid of accident. The medical officer was always aboard the firing ship. November and December were spent at the Norfolk Navy-Yard. After taking part in the naval review at Hampton Roads in January, the flotilla sailed for Culebra, West Indies, touching at Charleston, S. C., and San Juan, P. R., for coal and supplies en route.

The torpedo boat destroyers are fairly comfortable in a tropical climate. They have proven themselves very seaworthy. The ventilation is as complete as is possible in this class of vessel. All compartments are furnished with side air ports, mushroom and deck ventilators, except on the *Lawrence* and *Macdonough*, which have no air ports, but have large blowers in the compartments with deck ventilators and hatches. All the compartments are steam heated and can be made comfortable in cold weather.

Changes for the better have been made on the *Hopkins* and *Hull*. The small compartment on deck and under the bridge has been converted into a very satisfactory water-closet, with gravity drain, and flushed by streams of water from the main pump. The original closet was below deck, in a very small, ill-ventilated, ill-lighted compartment, with force hand-pump drain. The galley of the *Hopkins* has been placed in a house on deck and the space given to the crew. These changes were very desirable, and have added much to the comfort and convenience of the crews.

Several of the vessels—*Hopkins*, *Stewart*, *Lawrence*, and *Macdonough*—have the galley on deck, and the arrangement seems more comfortable, more sanitary, and better in every way. There is no sick bay on any of these vessels, the sick being cared for in the bunks or transferred to hospital. There is a very convenient dispensary on the *Worden*, and a small compartment, the forward conning tower, which serves for the same purpose on the *Hull*. Stowage room is provided in the galley storeroom.

REPORT ON THE U. S. S. ABARENDA.

By LEOPOLD H. SCHWERIN, *Acting Assistant Surgeon, U. S. Navy.*

Since this ship was put in commission on November 3, 1903, she has been steadily employed in carrying coal and supplies to Guantanamo Bay, Cuba, to the squadrons, and in carrying the sick, the discharged, and the prisoners to the United States.

The health of the ship's company for the past year has been very satisfactory and periodical examinations of the holds and living spaces have shown the ship to be in good sanitary condition.

The ventilation is good, and the ship is well lighted by electricity and heated by steam. The drinking water is distilled.

The food has been exceptionally good, both in quality and quantity.

The quarters for the officers and crew are comfortable in every respect.

The sick bay is large and well ventilated, and is situated on the berth deck forward, starboard side.

The medical and surgical supplies have been furnished in abundance and have been very satisfactory in quality.

There is an ice machine on board which has been unserviceable since its installation by reason of some mechanical defect. This should be repaired, as ice is a necessity in the Tropics.

REPORT ON THE U. S. S. EAGLE.

By J. O. E. HUMMEL, *Hospital Steward, U. S. Navy.*

On the 1st of January, 1904, the U. S. S. *Eagle* was at Key West, Fla., fitted up for survey work on the northwestern coast of Cuba. She is a gunboat (converted yacht) with a length of 155½ feet; beam, 24 feet; displacement, 434 tons; draft, 11½ feet; one Scotch boiler, steam at 160 pounds pressure; one single-screw vertical inverted triple-expansion engine. The present complement of the ship is 63 men, 4 officers, and 3 draughtsmen.

Arriving at Bahia Honda, Cuba, on the 3d of January, the *Eagle* surveyed that bay and remained in Cuban waters until June 4, 1904, making monthly runs to Key West; she then proceeded to Boston, Mass., for necessary alterations and improvements with a view to increasing her efficiency in survey work. About the 1st of November, 1904, she resumed active duty, and began work to establish a measured mile course for standardizing propellers near Owls Head, Penobscot Bay, Maine. While engaged on this duty the several survey parties began work at 8 a. m., taking a lunch with them and returning to the ship at 4 p. m. This climate is severe at this time of the year for survey work.

The living spaces are ample, and admirably adapted for the use intended. The captain's cabin is in the deck house amidships. The after berth deck serves as quarters for the majority of the crew, the remainder living forward on the berth deck under the forecastle. About half of the crew sleep in hammocks, the others in light canvas folding bunks on metal frames. The crew's quarters aft are separated from the engine room by a water-tight bulkhead. Forward of the boiler-room bulkhead are the wardroom officers' staterooms, which are sufficiently large. The officers' mess room is located on the forward part of the forward deck house. The after deck house is used for a chart room and writer's office, a bulkhead separating it from the galley, which is at the forward end. The galley is well equipped, lighted, and ventilated.

The ventilation is good throughout the ship, excepting in bad weather at sea.

The ship has one dynamo, 7 kilowatts, and is well equipped with electric lights.

The water supplied is of excellent quality and of sufficient quantity. The capacity of the distilling apparatus is about 1,440 gallons per day, which gives a liberal allowance for all purposes. The ice plant, installed and remodeled during the summer, works admirably, and is a source of great comfort and convenience. In the cold-storage room a supply of fresh provisions for thirty days can be carried.

Unfortunately no provision in the way of a wash room has been made for the men.

The heads are built over the rail aft, and covered with canvas. They are easily kept clean, and are free from all odor, but are extremely inconvenient in rough weather at sea. The officers' water-closet and bathroom is satisfactory.

There is no sick bay. The dispensary is located aft, on the port side of the berth deck. The sick are placed in berths or hammocks on the berth deck when necessary. Suitable shelving and lockers for drugs are provided.

The living spaces forward and aft are provided with a system of piping for heating purposes. The officers' quarters have steam radiators. All parts of the ship can be kept at a comfortable temperature.

The general health of both officers and crew has been excellent, and no diseases traceable to defective sanitation have occurred, although the ship has passed six months in a tropical climate.

SPECIAL REPORTS.

REPORT ON THE UNITED STATES NAVAL MEDICAL SCHOOL.

By R. A. Marmion, *Medical Director, U. S. Navy.*

The following report concerning the Naval Medical School during the third year of its existence is considered under two heads, namely, the regular winter term and the summer term.

Winter term.—The regular winter term opened on October 1, 1904, and at the end of the first month there was a total of 23 student officers present, these being all the assistant surgeons who had entered the Medical Corps during the preceding twelve months. Work was promptly begun in accordance with the accompanying schedule, which did not differ essentially from that for the preceding year. The only change of importance consisted in the allotment of three entire days to laboratory work into periods of two and one-half hours in the forenoon and the same for the afternoon, in lieu of shorter periods, the forenoon being devoted to instructing one section of the class (half) in the bacteriological laboratory and the afternoon to its instruction in the chemical laboratory. While this was a decided gain the work may be still more advantageously pursued by increasing the room available for the student officers' practical manipulations in both laboratories, so that the entire class may be present in the same laboratory at a time. To effect this change would call for a slight expenditure in extending the tables in the chemical laboratory and by adding 10 additional desks to the bacteriological room. The adoption of this plan would greatly relieve the instructors in laboratory work, and it can not be too strongly urged for that reason alone. Were the work done by the instructors all that they are required to do, they would still be sufficiently employed, but when it is considered that an increasing quantity of clinical work must be done by them, both in the microscopical and chemical laboratories, the importance of the change becomes more apparent.

Schedule followed during winter term, 1904–5.

FORENOON.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Physical drill	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10	9.00– 9.10
Signal tactics	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40	9.15– 9.40
Hospital corps drill	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00	9.45–10.00
Section A: Bacteriological laboratory	10.00–12.30	....	10.00–12.30	....	10.00–12.30	....
Section B: Chemical laboratory	10.00–12.30	....	10.00–12.30	....	10.00–12.30	....
Both sections, lectures: Duties of naval medical officers	....	10.00–11.00	....	....	....	....
Military diseases and tropical medicine	....	11.00–12.00	....	....	....	....
Both sections, lecture: Hygiene	....	....	....	10.00–11.00	....	....
Both sections: Miscellaneous	....	....	....	....	....	10.00–12.00
Military surgery	....	11.00–12.00	....	....	....	....
Bacteriology	....	....	....	11.00–12.00	....	....

AFTERNOON.

Section A: Chemical laboratory	1.00– 3.30	....	1.00– 3.30	....	1.00– 3.30	....
Section B: Bacteriological laboratory	1.00– 3.30	....	1.00– 3.30	....	1.00– 3.30	....
Miscellaneous	3.30– 4.30	2.30– 3.30	3.30– 4.30	....	3.30– 4.30	3.00– 4.30

Schedule followed during winter term, 1904-5—Continued.

AFTERNOON—Continued.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Both sections: Military diseases		12.30- 1.30				
Both sections: Miscellaneous				1.00- 2.00		
Opthalmology				2.00- 4.00		
Both sections: Laboratory						12.30- 3.00
Chemistry		1.30- 2.30				

NOTE.—Where the word "miscellaneous" appears in this routine it will be understood that the duties occupying that period were subject to variations, the class receiving due notice of their nature.

The schedule which has been given does not by any means exhibit all the work done at the school. Continuing the practice adopted when the school was inaugurated, distinguished specialists from outside were invited to address the class. Dr. Charles W. Stiles, of the Public Health and Marine-Hospital Service, gave a course of 30 lectures on medical zoology, copiously illustrated by diagrams and lantern slides. Dr. M. J. Rosenau, of the same Service, delivered several lectures on subjects with which his name is coupled as an authority. Dr. George Tully Vaughan, also of the Public Health and Marine-Hospital Service, gave a lecture on abdominal surgery. Dr. James Carroll, of the Army, gave a lecture on yellow fever. Dr. C. W. Richardson, of this city, lectured on intubation; Dr. J. F. Mitchell, also of this city, on anæsthesia and anæsthetic agents; Dr. Harvey Cushing, of the Johns Hopkins School of Medicine, on first aid; Prof. L. O. Howard, on mosquitoes, and Dr. W. N. Cogan, dean of the dental school of Georgetown University, gave three practical lectures on dental emergencies, accompanied by demonstrations. A gratifying incident was the promptness with which all of these gentlemen accepted the invitation to address the class.

The last few days of the session were devoted to written examinations on all of the branches.

Summer term.—With the view of extending the advantages of the Naval Medical School to officers of higher rank than those who had hitherto formed its classes, a summer course was conducted from April 29 to June 24. The school was inaugurated with a class of 13 officers from a distance, who had been ordered here for the purpose. Of the officers present during the term, 2 were surgeons, 4 were passed assistant surgeons whose examination for promotion was overdue, and 7 were passed assistant surgeons of a few years standing. In other words, none of them had before enjoyed any of the advantages which the school offered.

The instruction imparted was based upon the accompanying schedule, which shows how the work was distributed.

Schedule followed during summer term.

FORENOON.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Hospital Corps drill	9.00- 9.30	9.00- 9.30	9.00- 9.30	9.00- 9.30	9.00- 9.30	9.00- 9.30
Duties of naval medical officers	9.30-10.30					(a)
Bacteriological laboratory		9.30-12.30		9.30-12.30	9.30-12.30	(a)
Laboratory of hygiene			9.30-12.30			(a)
Military surgery	10.30-11.30	10.30-11.30	10.30-11.30	10.30-11.30	10.30-11.30	(a)
Pathological chemistry	11.30-12.30	11.30-12.30	11.30-12.30	11.30-12.30	11.30-12.30	(a)

AFTERNOON.

Period.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Chemical laboratory	1.30- 4.30	1.30- 4.30			1.30- 4.30	(a)
Clinic at Government Hospital for the Insane			2.00- 4.30			(a)
Ophthalmology				2.00- 4.30		(a)

[a] These periods to be occupied by miscellaneous work, the nature of which will be bulletined from time to time.

It will be seen that, as in the case of the winter school, the services of distinguished specialists greatly enriched the course by lectures. Doctors C. W. Stiles and M. J. Rosenau, of the Public Health and Marine-Hospital Service, gave valuable aid, as did Dr. W. A. White, superintendent of the Government Hospital for the Insane. Doctor Rosenau's course consisted of lectures on vaccines, antitoxins, and their standardization—a work which is now receiving great attention—and practical details of quarantine. Doctor Stiles delivered 8 lectures on medical zoology, and Doctor White gave 8 clinics of two or more hours each, using the material at the Government Hospital for the Insane for that purpose. Three days were devoted to practical work on the cadaver under the instruction of the instructor in military surgery. No examinations were held.

It would be advisable that in the future the summer school should open earlier than it did this year, in order to escape as much of the summer heat as possible. All of the members of the class were instructed in signals, and several of them elected to receive instruction in the manual of the sword.

The building in which the school is located is much in need of repairs, as is the basement, which is so damp as to be in a most objectionable condition during the months when steam is not used for heating purposes. To remedy this the entire basement should be damp proofed by being laid in concrete.

It is further recommended that the floors on a level with the street be tiled, as in no other way can they be economically kept clean. The approaches to the grounds at the foot of Twenty-fourth street at E street have not yet made much progress, owing to the nonarrival of the granite to be used in their construction. The road from the main gate to the new hospital is nearing completion. The water pressure is still unsatisfactory, and pumps must be used for filling the roof tank, as heretofore.

REPORT ON AN EPIDEMIC OF TYPHOID FEVER ON THE U. S. S. KEARSARGE.

By S. H. Dickson, *Medical Director, U. S. Navy.*

After a busy cruise of many months in the hot climate of the Caribbean Sea and the Gulf of Mexico, the *Kearsarge* was ordered to the Mediterranean for the summer months, when the temperature there was at its highest, when the rainfall was practically nil, and when fevers of all kinds, especially the one under consideration, were most apt to prevail. After a visit to Lisbon and a stay of two days at Gibraltar, the *Kearsarge* entered the waters of the Mediterranean June 23, 1904. At this time it was quite evident that neither the health of the officers nor crew was of the best, their appearance being that of men with lowered vitality, due to long exposure in the Tropics and to the discomforts of a hot battle ship.

There were more than the usual number of admissions to the sick list and complaint of physical disability, especially among the officers. The heat became greater as we proceeded eastward, and on our arrival in the Bay of Phalerum on June 30 it was excessive. So warm was the water and so necessary was it that the fresh meat for the men be preserved from spoiling that very frequently the output of ice from the one machine on board was interrupted, and there was none for issue or for cooling the scuttle butt, all energy having been centered upon the cold-storage compartments. For this reason some ice was permitted to be received on board for the wardroom and junior officers' messes, as well as 50 pounds a day for the sick, it having been previously ascertained that the ice was manufactured from distilled water.

While at anchor in the Bay of Phalerum for six days, both officers and men made frequent trips to Athens, and under the intense heat of the sun's rays climbed the Acropolis and visited the famous ruins of that city, doubtless drinking water freely, and perhaps milk, and partaking liberally of an unaccustomed diet and of fruit in abundance.

Owing to the dry season and the high wind the dust of Athens was something unprecedented, entering the lungs almost to the production of suffocation. A number of cases of enteric fever were under treatment in the hospitals of Athens at that time. The immediate effect of all this was to further lower the tone of the health of officers and men and to increase the sick list from 7 on June 30 to 19 on July 4.

Leaving Phalerum Bay on the afternoon of the 6th of July, we anchored in the harbor of Corfu on the morning of the 8th, remaining about thirty hours. Many of the officers and some of the crew went ashore sight-seeing. The temperature was very high and the air was filled with dust, while the internal heat of the ship was great.

On July 12, in the early morning, the *Kearsarge* reached Trieste, Austria, and anchored off the city with the other vessels of the fleet.

Immediately upon our arrival an officer was reported sick. This officer had been ailing for four days, but had continued on duty until compelled to give up. Enteric fever was suspected, and on the 15th the diagnosis was confirmed and he was transferred that evening to Hospital Santa Maria Maddalena, Trieste, where arrangements had been made for his reception. During the next few days four other officers and one mess attendant were taken ill with the disease, and, with the exception of one officer, who was sent to a private sanitarium, they were all sent to the Hospital Santa Maria Maddalena.

This hospital, situated upon one of the highest hills which encircle Trieste, and commanding a superb view of the Adriatic, is an annex to the civil hospital and is intended for the reception and treatment of cases of plague, smallpox, and cholera. As it has only recently been completed, however, it has not been used as yet for that purpose. It was, therefore, with some little difficulty that permission was obtained from the authorities to have our officers and men quartered there, and we were greatly indebted to Doctor Marcovich, the physician in charge, for his courtesy in removing all objections. The building itself is of stone, two stories in height, fire proof, with stone stairways, mosaic floors, and smooth, hard plaster finish to walls and ceilings. The furniture is generally of white enameled iron. Our patients were lodged on the second floor, which is very airy, there being a draft through the wide corridors and numerous windows. Each patient had his own room, which was well ventilated, clean, and bright. There was a bathroom with enameled tub and an excellent water-closet on each floor, with new and modern plumbing.

The chief physician of the hospital was Doctor Marcovich, a man of much ability and large experience in the treatment of infectious diseases, and in addition there were two internes near at hand, one always on duty. The nursing was done by trained female nurses.

In addition to the nurses attached to the hospital, a German-speaking hospital apprentice, first class, whose presence added much to the comfort and convenience of the patients, was detailed from this ship for special attendance upon the officers and as an interpreter between them and the Austrian hospital force.

The sanitarium referred to is a private hospital situated in a different part of the city from the Hospital Maddalena. It also is on a height with a cheerful prospect of the sea, is quite new, clean, well ventilated, with all modern conveniences and with well-furnished and comfortable rooms.

The patients in both hospitals were under the strict supervision of the medical officers of the ship, who made daily visits.

The charge per diem for officers at the Hospital Maddalena was 10 kroners Austrian (about $2) for each person. This included professional attendance, nursing, food, lodging, lights, and ordinary medicines. The charge for enlisted men was 6 kroners per day. The charge per diem for the officer at the sanitarium was 10 kroners, which included everything except the visits of Doctor Esher, and any amount of ice or delicacies which might be furnished or required.

It is beyond all reasonable doubt that the disease which attacked these officers and the mess attendant was contracted while the ship lay at anchor in the Bay of Phalerum between June 30 and July 6, and that the cause was introduced from without and was not traceable to the ship itself. Owing to the lowered vitality of these men from so long a residence in hot climates and on board an overheated ship, they were peculiarly susceptible to infectious disease. It is believed that it was either the lettuce or other uncooked vegetables, or the milk consumed by the wardroom officers and the mess attendant, which was responsible for the infection. Salads were served every day and sometimes twice daily, and were eaten by all the officers who were affected, whereas milk was but little used, save in hot coffee and for certain cooked dishes. The ice was made from distilled water, and it is excluded as a source of infection, since none of the many persons in the sick bay, using 50 pounds each day for six days, became infected.

REPORT ON THE UNITED STATES NAVAL HOSPITAL, CANACAO, P. I.

By C. T. Hibbett, *Medical Inspector, U. S. Navy.*

The new naval hospital, Canacao, P. I., was formally occupied at noon on March 14, 1905. The transfer from the old building within the navy-yard was accomplished with but little confusion and with practically no discomfort to the patients. Dinner was served from the galley of the old building on March 13, and from the same galley in the kitchen of the new hospital on March 14. This successful transfer was due, in great part, to the properly formulated plans and efficient management of Civil Engineer A. L. Parsons, U. S. Navy, who had charge of the construction work of the Canacao Hospital. The electric-light plant had not been established on account of the delayed arrival of the generators and engines from the United States, but a temporary generator and engine had been located by the contractors and tested for a few days before occupation. This temporary plant has met all requirements and bids fair to supply the hospital until the new dynamos arrive, which will be about May 15.

The Canacao Hospital is located on a peninsula of the same name about 2½ miles from the naval station at Cavite. The hospital reservation, comprising about 50 acres of sandy soil, has a water frontage of approximately 1,300 feet each on Manila and Canacao bays, between parallel lines across the peninsula. This location exposes the hospital to the full force of the northeast and southwest monsoons, which is very desirable. The buildings are arranged about a quadrangular court. On the south is the main building, consisting of two wards and an intervening compartment, or section, in direct line. This building is on stone piers of 3 feet elevation. The section separating the proximal ends of the wards, 30 by 30 feet, contains the dispensary, linen locker, and medical storeroom, with a wide passageway across the building on either side of the above-mentioned compartments. Above these compartments and passageways is a large second-story room fitted with lockers and lavatories for the hospital apprentices. This central location of the dispensary, storerooms, and second-story living space for hospital apprentices, is a prominent feature in the convenient arrangement of the hospital establishment. Extending completely around the main building is a veranda 11 feet wide. The utility of this wide veranda can not well be overestimated. During the typhoon season it protects from the driving rain, in the dry season it affords needed protection from the heat of the sun, and at all times offers a pleasant retreat for convalescents for recreation and amusement. It can also be utilized as additional berthing space should occasion require; in fact it is daily being used for such bed patients as are benefited by change of environment.

WARDS.

The two wards are each 92 by 31 feet floor area, with 18-foot vertical extension. They are one-story pavilion structures, outside rustic and inside tongued-and-grooved ceiling, open finished truss roof and air space of 6 inches below rafter plates. Each ward is provided with 8 windows, 7 feet by 4 feet 10 inches, and one door, 9 feet 5 inches by 6 feet 6 inches, on each side, and with 2 windows and 1 door of same dimensions at each end, which open on the veranda. Above the veranda are 9 smaller windows on each side and 3 at each end. With the above excellent system of ventilation, height of walls and free exposure to all possible air currents, there can be no appreciable accumulation of heated or contained air above. In my opinion this important part of the hospital establishment is built upon plans approximately perfect. The material is mainly best native hard woods which, with good workmanship, insure durability against the much dreaded white ant of the country and stability in the presence of typhoons and earthquakes.

About 10 feet off the back veranda from the quadrangle and joined to the veranda by covered passageways, are the following buildings in order from east to west: Brig, patients' lavatory, venereal bathroom and water-closet, and operating and X-ray building. The brig is an old Spanish brick structure 19 by 19 feet, which has been thoroughly overhauled and divided into four cells, one of which is padded for insane patients. The second of this back row of buildings is also a brick relic of Spanish days of the same dimensions as the brig. It has been converted into a general lavatory for patients, containing 5 shower baths, 11 porcelain-lined, fixed wash basins with spring faucets, and 8 solid porcelain closet seats. The 3 sets of fixtures are located in separate compartments, with incomplete bulkheads. The whole has a floor of white glazed tile, with drains into the main sewer. Next in order of place is a small bathroom and closet for venereal patients, containing 1 sanitary seat, 1 fixed basin, 1 shower and 1 tub bath. The latter has hot and cold water faucets. Last in the row of buildings off the south veranda and near the west end is the building containing the operating and dressing rooms and the X-ray room. This building has outside rustic California redwood finish. The operating and dressing rooms have floors and walls laid in white glazed tile and are ceiled above with well-dried tongued-and-grooved California redwood, with four coats of white enamel paint. The operating room has 7 windows, 3 of which are fixed, and a large double skylight.

For night work there are forty 16-candlepower electric bulbs arranged on three switches. The dressing room (also used for infectious operations) has four windows and is amply supplied with electric lights. On the same side of the building with the dressing room is the X-ray room. Separating the operating room from the two other compartments is an 8-foot hall, in which are located the sterilizing plant and a cabinet for linen. The hall has a white glazed tile floor, the same finish one-third up the walls, and California redwood on the upper walls and ceiling. The last consignment of operating-room furniture sent out by the Bureau for this building is now being opened and placed in position. In addition to this excellent outfit, there is a complete surgeon's lavatory, with hot and cold water in the operating room and a small porcelain-lined lavatory in the dressing room. This building, with its complete outfit of best modern furniture, has been greatly admired by visiting members of the profession.

SUBSISTENCE BUILDING.

On the west side of the quadrangle, with a veranda joined to the veranda of the main building, is what is known as the subsistence building. In order from south to north, it is divided into (*a*) bag and hammock room, (*b*) dining room, (*c*) pantry, (*d*) kitchen, and (*e*) room for Chinese cooks. The bag and hammock room is sufficiently large to serve as a general storeroom; also as a living room for the master-at-arms. The dining room is 35 by 20 feet, with two rows of tables on metal casters. The next compartment is the pantry, containing pipes and faucets for hot and cold water over fixed basins; also a large china cabinet and requisite shelving. Adjoining the pantry is the kitchen, with all necessary fittings. It has a complete concrete floor, and in one corner is a storeroom for canned and other staple supplies. At the extreme north end of the building is the room, roughly finished, for Chinese cooks and servants. The building is well ventilated by windows and an air space of 18 inches below rafter plates. It has a veranda 6 feet wide, fronting the quadrangle, and is protected at the back by a drooping roof of 5 feet extension. At the back of the kitchen is a shed 15 feet wide with a concrete floor for the reception of market supplies.

Back from the subsistence building, and across the new road which encircles the quadrangle, are located the power house, dynamo room, laundry, and disinfecting plant. The power house is supplied with two 50-horsepower boilers, newly built by the department of steam engineering of the station. The electric plant will consist of two 10-kilowatt generators with attached vertical engines for alternating use. The boilers are also intended to alternate in use, one boiler and one dynamo being sufficient to supply all buildings. The lighting system include house and street lights, among the latter being four arc lamps.

The laundry building, 20 by 39 feet, is fitted with wooden tubs lined with sheet zinc, cold-water faucets and steam pipes; it has a large drying room in one end. The floor is concrete, with a central drain into the main sewer.

The disinfecting plant consists of two rooms, in one of which is a new No. 10 Kny-Sprague disinfector; the other is fitted with racks as a fumigating room. All bedding was treated in the disinfector before being placed in the new buildings.

North from the power house is a 15,000-gallon redwood water tank placed at an elevation of about 50 feet. From the tank a 4-inch pipe runs to the outer end of the wharf, through which the dry-season water supply is furnished by the water boat from the artesian well in the navy-yard. The tank is also connected by a pipe with a surface well about 300 feet back from the power house. It has been fully demonstrated that this well will not supply the hospital with flushing, bathing, and laundry water during the dry season.

With no water for sprinkling the grounds and for protecting the lawns and shrubbery, there is required about 7,500 gallons per day for the buildings, laundry, and boilers. The surface well has supplied during the recent dry season from 2,000 to 3,000 gallons per day of more or less brackish water, which has been used mixed with the artesian well water, thus relieving the water-boat service to some extent. The amount of fresh water that will seep through the sandy soil from the heavy rainfall of the coming wet season can not now be determined, though it is not believed that it will be sufficient to keep the well free from salt water of the bay. A recent succession of unusually high tides following an early rainfall gave a corresponding flow of water, though too highly charged with salt to be safely used for lawns, and not suitable for best laundry work. Under pressure from constant pumping it is probable that this surface well, even during the wet season, will yield water of doubtful general utility.

For all purposes there should be practically no limit to the amount of fresh water supplied during the dry season. The wards and other hospital buildings should be kept as free from dust as possible, and it would be advisable to keep the lawns well irrigated. More water is required for such purposes than for flushing, laundry, bath, and power plant. With the present water boat service it would be impracticable to at all times meet the demands of the hospital should an attempt be made to regularly irrigate the grounds, and were it altogether practicable the expense would be excessive. Under the above conditions attempts have been made to procure funds with which to establish an artesian well on the hospital reservation. The money required would be small in consideration of the great benefits to be derived from an unlimited and permanent supply of fresh water. Drinking and cooking water is condensed from the boilers. All buildings are supplied with fixed fire-hose reels, and, where needed, hot and cold water pipes and best modern flushing tanks. Hot water is supplied from a tank at the power house. Fire and irrigation plugs are conveniently located about the grounds.

SICK OFFICERS' AND STEWARDS' BUNGALOWS.

On the north side of the quadrangle are located two bungalows, one of four rooms for sick officers and the other of two rooms for hospital stewards. Both of these bungalows have a hall through the center, are partially protected by verandas, and have a bath, lavatory, and closet. They are ceiled externally with rustic redwood and internally with Oregon pine. The partitions are incomplete above, leaving an air space of about 18 inches below the rafters. Windows for the sick officers' quarters are fitted with lattice blinds on the outside. During recent hot and dry weather these buildings were found to be very comfortable.

Diagonally back from the steward's bungalow and across the road is the stable building, constructed upon plans suitable to the climate. It contains four stalls, feed loft, water trough, and hose connections, partial concrete floor for ambulance and victoria, living room with shower bath and closet for ambulance driver, and harness room. The deadhouse is located back of the stable. It is fitted with water pipe and drain.

COMMANDING OFFICER'S BUNGALOW.

This building fronts on the east side of the quadrangle, and has the beach of Canacao Bay at the back, with tennis court between. It is a 1-story bungalow of seven rooms, with complete lavatory and a kitchen, the latter connected with the main building by a covered passageway. Above is a broad passageway leading to a small "roof garden," or observatory, from which a good view is obtained of Manila and Canacao bays and surrounding country. The four sides of the building are protected by a broad veranda, and the whole is further protected by large native trees, including four or five species. Constructively it is strong and durable. The foundation and frame timbers are all best native hard wood, the outside redwood rustic, and the inner ceiling grooved and tongued Oregon pine. It has a shingled hip roof, with a superimposed 24 by 12 foot observatory. Through the center of the building, from east to west, is a hall 10 feet wide.

A bungalow for junior officers is under construction. It is located south from the last-mentioned building, across the main road from the east end of the ward building; will have five rooms and a complete lavatory. It will be ready for occupation about June 1.

ADMINISTRATION BUILDING.

In the center of the quadrangle is an old Spanish chapel, octagonal in shape, with two rectangular annexes. This has been thoroughly renovated and slightly altered for use as an administration building. The main part, or octagon, is fitted up for general office work; one annex is used as a desk and typewriting room, while the other has been converted into a small clinical laboratory. The interior is artistically finished in California redwood, oil stained; floor, black and white glazed tile. This old building in its new coat of paint and in its central location presents quite a picturesque appearance.

SEWER SYSTEM.

The sewer system is laid with 6-inch concrete pipe from its two main sources, patients' lavatory and north end of the kitchen to a point 30 feet north from the commanding officer's bungalow. At this point these two branches join, through a manhole, an 8-inch concrete pipe, which empties into a manhole on the beach. From this manhole an 8-inch iron pipe, embedded in a solid concrete wall, extends about 100 feet into Canacao Bay. All water-closet fixtures are of most modern types. No trouble has been experienced with the closets or drains, and none is anticipated.

WHARF.

A complete new wharf has been built. This wharf is 250 feet long and 10 feet wide; piles of well-seasoned native hard wood, and floor of Oregon pine. Its shore joins a solid masonry wall, and at its outer end is a float and a runway for convenient landing of patients from the fleet. Ice and fresh meat are landed here weekly by the supply boat from Manila.

GROUNDS AND ROADS.

Necessary improvements to the grounds and roads embraced the following work: Removal of partially buried walks and building foundations of the old Spanish establishment; filling in to a depth of from 1 to 3 feet all the area occupied by the new buildings and space within the quadrangle; laying new stone walks through the grounds to connect the different buildings; repairing the old public road through the hospital reservation, and building a new road to encircle the buildings fronting the quadrangle. The road is about one-fifth of a mile in length, has a built-up sandy-soil foundation and a superimposed 1-foot layer of ship's cinders; the old road was similarly raised. Under the appropriation it was impracticable to extend improvement of land beyond the immediate hospital grounds, except to destroy some of the more objectionable wild growths.

CAPACITY OF THE HOSPITAL.

The capacity of the Canacao Hospital may be estimated (*a*) by the floor space of the wards and (*b*) by the possibilities of extension of accommodations by utilizing the verandas and pitching tents. Limited to actual ward accommodations, the number of patients that can well be cared for is 80. For the area this number would be somewhat excessive in a temperate or cold-climate hospital, wherein structural conditions must be considered to meet the requirements for all degrees of cold and heat. In the Tropics, where protection against low temperature is not taken into account, and where only rain and the sun heat are to be excluded, there is a less danger from overcrowding. As will be seen from the description of the wards of the Canacao Hospital, they are practically open-air pavilions, in which the berthing capacity may be measured by the number of beds that can be located without obstructing free passageway and interfering with proper handling of the patients. The possibilities of the hospital, by utilizing one or more sides of the veranda, according to weather, and pitching tents at convenient points on the surrounding grounds, might be extended to 200 patients without overtaxing the subsistence and other departments. The necessity for such extension, under the present strength of our naval force in the Orient, is not likely to arise without the appearance of a serious epidemic.

About 500 yards from the main hospital and across the peninsula on the Manila Bay shore is a building for infectious diseases. This establishment, consisting of two wards, each 30 by 20 feet, and a small house for attendants, was built in 1901. The buildings are in need of some repairs, all of which can probably be done by the present hospital force at small cost. Electric lights and a water pipe have recently been supplied from the main hospital. In any moderate epidemic the patients can be treated in this hospital with but little inconvenience, subsistence being supplied from the main hospital.

The completion and establishment of the Canacao Hospital has been a source of great pleasure to the medical officers, and its occupation no less acceptable to those who are so unfortunate as to need hospital treatment in this climate. In plan of construction it is purely tropical, which simply means all open-air exposure consistent with protection from sun and rain. If there is any one feature of structural design to which special attention is called as contributing most to comfort, and, therefore, efficiency, it is the liberal veranda space.

It is recommended that funds be furnished for the following additional work: (*a*) Boring an artesian well, (*b*) placing a suitable fence around the hospital establishment, and (*c*) improving the land on the reservation beyond the limits of the suggested inclosure.

REPORT ON AN EPIDEMIC OF DIPHTHERIA ON THE U. S. S. PRAIRIE.

By F. W. F. WIEBER, *Surgeon, U. S. Navy.*

The epidemic of diphtheria which caused the ship to be sent to Port Royal, S. C., first appeared during August, while the ship was at Gloucester, Mass.

The ports visited within six weeks prior to coming to Gloucester were East Lamoine and Bar Harbor. At the former place the ship had remained for about five weeks, at the latter three days.

Diphtheria had not existed at either of these places in epidemic form, and it is believed that mild cases of diphtheria had existed on board prior to that time, and that in consequence of climatic changes the bacillus only then assumed virulent form.

During the entire year it has been the habit to take cultures from all suspicious throats that came under observation at sick call. These cultures developed for about twenty-four hours at room temperature. Typical Klebs-Loeffler bacilli, prior to August, had not been found.

During 1903, 83 cases of tonsilitis had been under treatment, with a total of 368 sick days. During the past year the totals were 93 of tonsilitis, with 541 sick days, an increase of 10 cases of tonsilitis and 173 sick days.

This comparison shows that the increase of throat troubles was not excessive. The increase in the number of cases, however, was a steady one from quarter to quarter, viz, 5 in the first quarter, 10 in the second, 22 in the third, and 50 in the fourth. Even this was not such an enormous increase considering the seasons to which the figures applied, and the duties to which the ship was ordered in October, November, and December, under conditions of overcrowding and exposure.

The clinical cases appeared at longer or shorter intervals; at times weeks intervened between succeeding cases, so that the hope instinctively prevailed that the disease was sporadic and could be controlled.

The ship was sent to the Port Royal Naval Station for disinfection and for the segregation of the infected from the noninfected, and arrived there on December 9 with a complement of 685 officers and men.

Of the buildings available for use, one, No. 20, was ready to receive men immediately, being fitted up with galley, lavatory, latrine, and berthing facilities for about 500 men. It was used as a barracks for the men prior to their examination.

The other buildings, No. 17 and the annex of No. 18, were not ready for occupancy; the former had no heating plant and no water; the latter was piled up with lumber, had no wooden floor, no lights, no heating facilities, no separate latrine, and the roof leaked in many places. They were, however, the only places available for the sick, suspects, and convalescents, and steps were consequently taken to make both places habitable. The patients—diphtheria cases and all others who had been in the sick bay with them—were transferred to building No. 17. With only these three buildings available for use, the work was done, and consisted in depopulation of the ship, disinfection of the ship, and examination of cultures from the throats of the entire personnel.

On December 11 and 12, 140 men of the ship's company proper were put into building No. 20, and kept there one week. After that time cultures were taken from their throats and examined. Those found free from Klebs-Loeffler bacillus were at once sent to another building, where they and their effects were disinfected, after which they were returned to the ship as soon as she was ready.

Before the first party of men was ready to return to the ship, the after berth deck was disinfected by live steam, and painted, in order to temporarily berth the returning men during the time necessary for the disinfection of the gun deck. This was commenced immediately after the transfer of the second half of the men to the barracks.

This work of disinfection was under the immediate direction of the medical officers and consisted in saturating the deck with a 1:1,000 solution of bichloride of mercury, and in directing live steam against the sides, bulkheads, and overhead deck by means of hose. By night the entire gun deck had been gone over.

On the following day the forward berth deck, which included the sick bay, was similarly disinfected. As soon as possible after this the painting was completed. The ship was then ready to receive more men, and the bacteriological work was again resumed and continued without interruption until the work had been finished.

The work was divided as follows: The senior medical officer took entire charge of the diphtheria cases in the hospital, and examined cultures; one junior medical officer attended to the taking and examination of cultures, and the other had charge of the disinfection of the men and all their effects when ready to return to the ship. Our main disinfecting agent was live steam, which was forced into hammocks and bags. Solutions of bichloride of mercury, carbolic acid, and formalin were resorted to where steam could not be used.

The number of cultures examined daily averaged about 30. To diagnose diphtheria, typical Klebs-Loeffler bacilli were looked for, and if none were found the culture was declared negative. The close resemblance to the Klebs-Loeffler bacillus of chains of segments of a fungus of small size was frequently noticed and commented on. The custom was to take two smears of the growths from the blood-serum tubes and stain one by the Gram method, the other by that of Loeffler or Neisser.

The former revealed at a glance whether bacilli of the size and shape of Klebs-Loeffler bacilli retained the stain. The advantage of the Gram method was that it threw out of suspicion many slender atypical bacilli. Only Klebs-Loeffler, pseudo-diphtheria bacilli, staphylococci, and streptococci, and a few other bacilli retained the violet. Everything else was stained by the counterstain used in this method, usually Vesuvin or Bismark brown. By means of the Gram method the presence of a few suspicious bacilli in a specimen could be quickly ascertained, and in these cases prolonged search by either of the other methods would often show, here and there, a typical organism.

The work of examining throat cultures was finished on February 3, and the ship was ready to leave on February 4.

The total number of cases found infected reached 68, and of these the great majority never showed any clinical symptoms. After finding the diphtheria organisms in the culture, inspection of throats revealed slight redness of fauces and of pharynx, and in some cases nothing abnormal could be found. This explains the reason why the infection could have made such an inroad on board, since it spread in so insidious a manner. Examination of the urine of the patients transferred to the hospital showed an absence of albumen.

One case had suffered from diphtheria while attached to the Norfolk Navy-Yard in 1903, and states that he was at the naval hospital at Norfolk for about one month at that time.

Twenty-two days after returning to the ship, one man of the dynamo-room force came under observation with sore throat. A membrane was found covering the left tonsil. He was immediately transferred back to the barracks, awaiting the result of a culture examination, which showed the Klebs-Loeffler bacillus on the following day.

The report of the culture taken at the time of his return to the ship twenty-two days before had been staphylococci and streptococci. Whether he had slipped through with a few diphtheria organisms in his throat, which were not detected, or whether he had been infected in some way after his return to the ship, is unsettled. Fortunately the subject of the disease was a quiet man, who associated but very little with the rest of the ship's company. He slept in the dynamo-room compartment. This was thoroughly disinfected by formaldehyde, as it was one of the few compartments of the ship which could be made air-tight. All the woodwork and the deck were several times wiped off with a solution of bichloride of mercury, 1:1,000. Cultures from the throats of all the persons with whom he had been closely associated in the dynamo room were taken. All proved negative.

Antitoxin was used only in the clinical cases. Those who showed no clinical symptoms were treated by local antiseptics only. The Koch incubator supplied by the Bureau worked in a most satisfactory way.

The Naval Station, Port Royal, is not sufficiently prepared for work on such an extensive scale, and there were not enough buildings available for use in cold weather. One more building like No. 20 would have made all very much easier. As it was, this building was very much crowded, and many infections probably arose from that fact.

If the station is to be used for disinfecting purposes, the buildings should be supplied with running water, also with latrines, built over the water. One such latrine was built by the ship's company and proved satisfactory.

Building No. 17 proved too small for all of the sick. To serve as a hospital, for which it is otherwise well suited, the accommodations should be doubled.

The first attempt to keep convalescents in No. 18 and the infected in No. 17 had to be abandoned for lack of adequate accommodations. The infected and convalescents had to be put together indiscriminately. For that reason none of the infected men had been returned to the ship at the time of sailing.

One great defect in our work was the following: The men from whom cultures had been taken had to be left in the barracks for one day with the other men before being disposed of. In case their cultures were pronounced negative they, with all their belongings, were disinfected and immediately returned to the ship. Disinfection consisted in a full bath in a solution of bichloride of mercury, 1:1,000 disinfection of all clothing and bedding by live steam, and a change of clothing.

Late infections, just before or after taking the cultures, were not and could not be excluded by our method and could not be detected prior to their return to the ship. Under such conditions the occurrence of sporadic cases among the ship's company was not only a possibility, but a probability. Again, the sick had to be fed from the galley at the barracks, the food being carried by men from the barracks, and that this offered opportunity for contact and infection is only too apparent.

Under such conditions work of the foregoing character which was done earnestly and conscientiously by the medical officers of the ship could easily prove a partial failure, and the blame should not rest on them alone.

REPORT ON THE TEMPORARY CAMP FOR TUBERCULAR PATIENTS AT THE UNITED STATES NAVAL HOSPITAL, SAN JUAN, P. R.

By George Pickrell, *Surgeon, U. S. Navy.*

On February 1, 1904, a camp for tubercular cases was established on high and sandy ground overlooking the sea. Ground drainage was good, and a stiff northeast trade wind was almost constant. Each patient was quartered in a walled tent (with fly), having a good pine floor, on which was a cot, locker, and chair. The tents opened to the south, thus allowing sunshine to enter freely and giving shelter from storm without shutting off ventilation. In fine weather the sides of the tents were rolled up. The tubercular patients did their own cooking and lived as separately as possible from the main hospital. One tent was set apart for use as a kitchen and another for use as a mess tent.

During the year 22 of these cases were treated and with uniformly good results. Of these 6 were discharged to duty, 12 were transferred to other hospitals, 3 invalided from the service, and 1 carried over to 1905.

The medical treatment of these tubercular patients was as follows: Creosotal was administered in capsules three times daily, beginning with 5 drops and gradually increasing the dose to 15. Cod liver oil was also given three times daily after regular meals, beginning with 1 drachm and gradually increasing the dose. In some cases as much as 1 ounce was tolerated. Heroin was occasionally used and with marked success in relieving cough.

The regular hospital fare, and, in addition, 2 liters of milk and a dozen eggs were allowed each patient daily. One-half of the eggs were eaten raw at stated intervals between meals. In their own kitchen tent the patients were at liberty to cook the eggs in any mode to suit individual tastes.

The relation of the general health of these patients to meteorological conditions was noted. It may be remarked that during steady rains and increased humidity temperatures were slightly elevated, cough became more troublesome, and mental depression was greater; whereas, during clear weather, with a maximum amount of sunshine and pleasant wind, the conditions were the opposite. No cases presented any special symptoms, such as pyrexia, anæmia, diarrhea, sweating, etc. No cases of troublesome gastritis occurred. Yet in spite of the many climatic and physical advantages of Porto Rico, the psychologic factor involved constitute a great disadvantage to the establishment here of a permanent tubercular camp for such cases as are received at naval hospitals. To the mental depression incident to the disease is added prolonged separation from friends and relatives and contact with strange manners and customs. Moreover, minds previously accustomed to the strenuous northern life do not readily harmonize with conditions of enforced inactivity. Even those cases into which homesickness does not enter at the outset usually exhibit it when the novelty of surroundings has worn off. For these reasons it is recommended that this camp be retained only to receive tubercular cases during the winter months, and to hold them till the weather permits of their transfer north.

REPORT ON THE SCHOOLS OF TROPICAL MEDICINE AND MILITARY MEDICAL SCHOOLS OF ENGLAND.

By E. R Stitt, *Surgeon, U. S. Navy.*

THE LONDON SCHOOL OF TROPICAL MEDICINE.

The course of instruction extends over a period of eleven weeks, the twelfth week being devoted to examinations. There is an average of only one lecture daily, the remaining five hours of prescribed work being either in the laboratory or at clinics in the hospital.

The clinics are given in the wards of the Seaman's Hospital, and as this hospital is located midway between the Victoria and Royal Albert docks, where are berthed so many of the ships from India, China, and Africa, it will be readily recognized how great an opportunity there is for securing tropical disease material.

The class of diseases in the wards shows a great variety of tropical affections such as beriberi, malaria of various types, trypanosomiasis, filariasis, black water fever, kala azar, rather frequent cases of liver abscess and dysentery, not to mention other less well-known diseases such as sprue, bilharziosis, etc.

The lectures in tropical medicine deal with the more common and important diseases.

The surgical lectures deal with operations on the liver and spleen and likewise the various surgical features of filarial disease and calculosis.

In this connection may be mentioned the great importance attached by the faculty to the eggs of various animal parasites as etiological factors in calculi of the bladder and gallstones.

The lectures on hygiene relate to the broad questions of climates, water supplies, food, soil, etc., and more in detail as to practical methods of disposal of waste matter in small tropical villages—which would equally well apply to camps—and especially as to construction of isolation huts and considerations of markets, stables, coolie ships, etc. The most important lectures deal with measures of disinfection in connection with the handling of epidemics.

The course of lectures in skin diseases is almost entirely devoted to a consideration of the infective granulomata and the parasitic skin affections, it being the idea that in the Tropics question of diagnosis between the lesion of tuberculosis, syphilis, leprosy, yaws, etc., and the treatment of the various parasitic mold infections of the skin are of most importance.

The lectures on eye diseases simply treat of the effects of exposure of the eye to light, dust, insects, etc., and the method of treating the resulting condition. The eye symptoms and lesions in malaria, leprosy, beriberi, oriental sore, etc., are carefully considered.

It will be judged from the preponderance of time given up to laboratory work that this is considered by far the most important feature of the course. These exercises commence at 10 o'clock in the morning. In the first hour there is a lecture on the subject to be taken up practically that day. This, however, is more in the nature of slowly reading from notes and having the student take down verbatim what is read. In addition, the use of the blackboard for writing down classification tables and making drawings for the students to copy is frequent.

It would appear that the method of writing out notes, including illustrated diagrams, and then hectographing the same and giving each student a copy, as is done at our Naval Medical School, is far better. The advantages are great saving of time and prevention of confusion in the mind of the student from involved technical definitions and as to the proper spelling of unfamiliar terms.

The first few days in the laboratory are devoted to a consideration of the microscope, micrometry, and the methods of cleaning slides, etc.

The course in normal and pathological (other than tropical) human-blood examination is inferior to that given at our school.

The much-vaunted Leishman stain has no advantages in differentiation over the Wright blood stain, and the greater simplicity of the latter in preparation should strongly recommend it for naval use.

The obtaining of fresh blood for examination in cases of human malaria, trypanosomiasis, and filariasis is of course almost impossible in our school, but by the use of dried films and supplementing with similar affections in animals the disadvantage could be largely obviated.

It should be most strongly urged on all the graduates of our school to make special effort, whenever they may be cruising, to obtain interesting tropical material, especially tissue sections or blood films.

The mosquito house at the London School of Tropical Medicine is a small structure, of two compartments, 6 by 8 by 5 feet, like a greenhouse, but with special attention to ventilation above and below. The under surface of the glass panes is painted black to keep out light. Furthermore, arrangement is made by the placing of old boxes, hangings, etc., to provide the insects with the dark recesses so much liked by them. Vessels of water, so they may lay eggs, and pieces of bread and fruit in dishes are placed about the shelving.

It has been found very difficult to raise the *Anophelina*, but the reverse has obtained with the *Culicina*. The mosquito house should not be in a room inside, but should be outside the building.

Great attention is given to the study of the distinguishing marks of the various genera and species of mosquitoes, and about two days are devoted to dissecting mosquitoes.

The importance of the ticks in transmission of spirillar fever and piroplasmata makes it important that attention should be paid to these insects. They are easily raised in Petri dishes with pieces of moist blotting paper kept in an incubator.

As regards helminthology, the lectures given by Dr. C. W. Stiles in our medical school are of far greater practical value than those given here, where they go into the minutest detail as to the anatomy of some fluke that may have only once been discovered in man, and as a result considerable confusion exists in the minds of the class as to the relative importance of various parasites.

The practical work in our laboratory as conducted by Doctor Stiles and his assistants fully equals the practical course in helminthology given at this school.

The course in bacteriology is almost entirely theoretical. Instead of having an opportunity to inoculate their own tubes and plates they are simply shown an occasional culture or plate. The work in connection with staining bacteria in sections, however, is very thorough.

A good course is given in the study of pathogenic molds, and it would appear advisable to have such a study follow that of the nonpathogenic ones in the course at our own laboratory.

A feature of the laboratory course is the giving of short examinations in practical diagnosing of microscopic slides or of microscopic objects about twice weekly. There is only a short time allowed, and then, when the students hand in their written reports a short talk is given in connection with the mistakes made.

The spirit of rivalry engendered causes the greatest interest to be shown by the students and is a most valuable form of instruction.

Practical work with the infective granulomata is gone into carefully, each student being required to stain specimens of yaws, leprosy, granuloma pudendi, etc. It would seem well if our laboratory could be supplied with material from the diseases existing at Guam.

There is one feature of the utmost teaching value in this school, and that is the possession of a well-arranged and accessible museum. It is not a large one, but the student finds therein well-mounted specimens of the various mosquitoes, flies, tapeworms, and ticks, together with such pathological organs as are important in tropical medicine.

The collection of liver abscesses, bilharziosis and ankylostomiasis livers, intestinal ulcers, etc., is of the greatest use to the student.

A small room with such specimens well mounted and absolutely for the use of the student, rather than as an exhibit, would be of inestimable value to our school.

THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

At this school, the subjects studied together with the laboratory and clinical work is along the same lines as at the London school.

The work in connection with original research, especially of the nature of sending out parties to South America, Africa, and elsewhere, is a most important feature of the school. This method adds greatly to the reputation of the school and is of incalculable value to the world at large, but it would seem to benefit those under instruction solely by reason of the supply of material which might be collected by the scientists and sent home to Liverpool.

This school is very fortunate in having an establishment at Runcorn, about 12 miles from Liverpool, the principal object of this experimental station being the manufacture of sera, vaccines, etc. In addition, they have ample facilities for the experimental work in connection with trypanosomiasis, tick fevers, and the like, and constantly have on hand infections with such diseases.

To illustrate the refinements in laboratory work at the Liverpool schools, they were plugging tubes for different media with different colors of cotton wool—red, green, blue, yellow, etc.

THE ROYAL NAVAL MEDICAL SCHOOL AT HASLAR.

At this school there are two courses—one for those who have just entered and one for those who have been in the service for several years.

The course for the new men covers a period of four months, and the laboratory work is divided between micro-biology and hygiene.

The practical course in micro-biology includes blood technique and laboratory methods for the study of malaria, filarial species, trypanosomes, flukes, cestodes, mosquitoes, etc.

The course in bacteriology includes methods of making media and practical work with the pyogenic organisms, leprosy, tubercle, the colon group, diphtheria, cholera, Malta fever, anthrax, mycetoma, and the pathogenic molds.

The work in connection with Malta fever is very thorough, including methods of obtaining the organisms from the blood, urine, etc. It is almost invariably isolated from the blood if quantities of 30 c. c. be taken and in about 10 per cent of cases from urine.

As there are usually in the neighborhood of 100 cases of Malta fever in the wards at Haslar, its importance will be readily recognized. .

The course for those who have been in the service for some time covers very much the same ground as that for those entering, but it is completed in twenty working laboratory days. Attendance is only compulsory from 10 until 1 o'clock, afternoon attendance being voluntary. In addition to this, five days are devoted to practical work with X-rays. A very excellent feature of the method of instruction in the laboratory is the commencing of the day's work with practical demonstrations, then a lecture, and subsequently additional practical work. The interest of the student is aroused by the practical work, and the explanations in the lecture enable him to work more satisfactorily subsequently. In this school bacteriology and tropical medicine are combined in the same chair.

In addition to the work in bacteriology and clinical microscopy the class also takes up meteorology, water and food analysis under the instruction in hygiene.

THE ROYAL ARMY MEDICAL CORPS COLLEGE AT LONDON.

There are two courses—one for the junior officers at the time of qualifying for the service and a second for the senior ones, who are chiefly those holding the rank of captain, Royal Army Medical Corps.

To take these two courses separately, we shall first consider the course given to the juniors.

The work at London embraces a course of two months, after which a more purely military medical training is given at Aldershot, this course giving a military training and practical experience in military medical administration. The period there covers from three to four months.

The following roster during the two months at London will best indicate the character of the work:

FORENOON.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday
Military surgery	9.00-10.00		9.00-10.00		9.00-10.00	(a)
Military medical administration		9.00-10.00		9.00-10.00		(a)
Hygiene or pathology	10.00-12.00	10.00-12.45	10.00-12.45	10.00-12.45	10.00-12.45	(a)

AFTERNOON.

Hygiene or pathology	2.15- 4.00	2.15- 4.00	2.15- 4.00	2.15- 4.00	2.15- 4.00	(a)

[a] Private study.

The hour from 10 to 11 in the laboratories is devoted to a lecture by the instructor in hygiene or pathology accordingly.

The course in military medical administration embraces the following subjects, viz: General instructions, correspondence, constitution and organization of the Army, organization of the army medical service, hospital establishments at home and in the field, hospital ships, ambulance trains, life of the soldier, recruiting and invaliding, demonstration in inspecting recruits, duties of medical officers in general in camps and in barracks, routine in military hospitals, relation of medical to other services, and training of hospital corps force.

The course in military surgery is practically as follows: Surgical procedures as modified by conditions in a campaign, old and modern firearms—their differences and peculiarities, mechanics of projectiles, general considerations regarding bullet wounds, explosive effects, etc., multiple bullet wounds, shell wounds, general treatment of bullet wounds, employment of X-rays in the field, general consideration of gunshot wounds of joints, gunshot contusions and fractures of bones, and gunshot wounds of head, chest, spine, and abdomen.

There are also several lectures on X-rays, such as: Consideration as to electricity, structure of induction coils, sources of currents for use with coils, vacuum tubes, X-rays, demonstration of skiagraph taking, localization of foreign bodies in the body, use of the fluorescent screen, stereoscope skiagraphs, and localization of foreign bodies by means of them.

In hygiene the following subjects are taken up in the lectures, viz: Hygiene of the recruit and his military training (gymnastics, etc.), general plan, construction, and sanitary features of barracks, water supplies, purification of water in barracks and camps, ventilation, food of soldier with especial reference to recognition of sound and wholesome food and the detection of adulteration, removal and disposal of excreta, hygiene of the march and camp, disinfection, and prevalence and prevention of infective diseases in the Army.

The practical course in hygiene includes, viz: Thorough laboratory work in water analysis, including physical, biological, bacteriological, and chemical analysis; estimations of the CO_2 and of the hygrometric state of the air; milk analysis, including examination for preservatives; examination of flour and bread; practical demonstrations on sanitary appliances and at sewage works, and examination of sewage and of sewage effluents.

The course in pathology is almost identical with that given at the London School of Tropical Medicine.

The lectures embrace the following subjects: General morphology of the blood, changes produced in the blood by bacterial and other diseases, general principles of bacteriological technique, morphology and classification of bacteria, preparation and use of culture media, the pyogenic organisms, gonorrhœa, syphilis, chancroid, pneumonia, typhoid, tuberculosis, leprosy, Malta fever, plague, diphtheria, spirillum fever, yellow fever, cholera, tetanus, widal reaction, rabies, malaria, dengue, beriberi, kala-azar, sprue, yaws, sleeping sickness, dysentery, liver abscess, tropical helminthology, and the rarer tropical diseases.

In the laboratory the work is almost identical with that at the schools of tropical medicine.

For the senior officers the lectures and practical courses are on similar lines as for the juniors. The course for these officers is one of five months' duration. The first three months are taken up with skiagraphy, refraction, and clinics.

The roster for the two succeeding months is practically the same as for the junior officers, the time being in large part devoted to laboratory work in hygiene and pathology.

Teachers of the first rank in the medical schools of London are selected by the war department in addition to the faculty.

In addition to clinical work in general surgery and medicine each senior medical officer is required to take up some specialty, such as ophthalmology, laryngology, genito-urinary surgery, etc.

Each student is required to submit in writing at the end of each week a report as to the hospital or other work done by him.

It would seem, if the time should come when the medical corps of our own service should have a sufficient number to justify a course of study as extensive as that detailed above for those who have been in the Navy for some time, that it would be more advantageous for us to have these men take the work of the first two months in the laboratories of the United States Naval Medical School and subsequently, if their interest during the first two months seemed to justify it, to then give them a chance to take a two or three months' course in the clinics and hospitals of some large cities.

From observation of the courses and equipment in the various postgraduate English laboratories it would appear that the facilities in our own laboratory are fully equal to the proper preparation of our medical officers in laboratory work.

REPORT ON PHYSICAL TRAINING AT THE UNITED STATES NAVAL ACADEMY.

By E. S. Bogert, *Surgeon, U. S. Navy.*

At all of the universities visited for the purpose of securing information as to the methods employed in the physical training of students who enter the physical contests, the subject is considered to be one of growing importance, and is yearly attracting a greater amount of interest. The scope of the work and the methods and requirements, which vary at all of these institutions, include complete anthropometrical measurements of students, compulsory examination of all candidates for athletic competition, compliance of candidates for athletic honors with certain physical and strength standards, superintendence of the gymnasium work of all students, prescription of the exercises of all students for their proper development, compulsory gymnasium work by students, compliance with physical and strength standards for candidates for scholastic honors, etc.

The physical director's work in this department has consisted of: (1) anthropometrical measurements and strength tests of the midshipmen, (2) physical examination of all candidates for competition in athletic contests, (3) superintendence of the gymnastic drills of the fourth class during the winter months, (4) general charge of the physical condition of the football squad during their period of work and attention to the injuries incurred in practice and during games, (5) superintendence of the dietary of the training tables for athletes, (6) direction and advice as to the indoor winter work of the candidates for the crew, the track team, the baseball nine, the football squad, and the gymnasium team, (7) care of the physical preparation of the fencing team for the intercollegiate matches in New York, and (8) general charge of the gymnasium and the gymnasium work of all the midshipmen.

The anthropometrical measurements of the class of 1904 were commenced early in December in order that they might be completed prior to the graduation of this class on February 1, 1904. The members of this class had not been measured or given strength tests for over a year and a half. They were given the old strength test in order that the records in their cases might be continuous and because their almost immediate graduation precluded any advantage being gained by putting them through the new test. Of the 62 members of this class, only 6 could equal or exceed their strength test of a year and a half before. That such a record could be possible is extraordinary and clearly shows that some method should be pursued which will at least prevent physical deterioration during the undergraduate period here.

It is to be noted that the gymnastic drills have up to the present been confined to the fourth class. During the winter the fourth class men were all given systematic drills with dumb-bells, Indian clubs, and in boxing. These, in connection with the setting-up drills during the summer, have undoubtedly raised the standard of the physical development of the class, but many of the members should be compelled to continue this work in order to reach anything like a high standard of physical development or efficiency.

In conclusion, the importance of the continuance of this work is urged. When the large civil universities are devoting so much attention to this branch and are constantly increasing the physical requirements of their students, it certainly follows that, leaving out of consideration all other ideas, this, as one of the two Government military schools, should not fall behind in the march of progress.

REPORT ON CASES OF MEASLES TREATED AT THE UNITED STATES NAVAL STATION, GUANTANAMO, CUBA.

By C. D. Brownell, *Surgeon, U. S. Navy.*

The first case of measles was received from the U. S. S. *Yankee* on February 11. This patient was isolated under the forecastle of coal barge No. 1 and later transferred to coal barge No. 66. Fourteen patients with measles were admitted from the U. S. S. *Maine* on February 15, followed by 12 others before the ship left the station on March 5. The patients from the *Maine* received a bichloride bath, 1:10,000, and had their clothes and bedding disinfected by sulphur fumigation upon their arrival at the barges. Coal barges 65 and 66 were lashed together and used as a quarantine hospital for the cases of measles.

After the number of patients were sufficiently reduced, barge 65, after having the deck washed down with bichloride solution (1:500) and thorough fumigation with formaldehyde, was turned over for the use for which it was originally intended. The barges are exactly alike. They are housed-over scows, with a clear deck fore and aft of 10 feet. On each side of the house is a clear deck space of 2 feet 9 inches. The interior measurements of the superstructure (the holds were not used and the hatches were nailed down) are 65 feet long by 24 feet 9 inches wide, with a mean height of nearly 8 feet. Two sliding doors occupy the greater part of each end, and there are two large sliding doors on each side. The ventilation was still further improved by raising two of the roof hatches, one near each end, 2 feet above the roof. The open spaces thus left were protected by canvas flaps that could be secured in case of rain or high winds. There are nearly 13,000 cubic feet of air space in each barge, which is changed many times during the hour. A canvas-covered water-closet, with three seats overhanging the water, was erected on the port quarter of one of the barges. A galley covered with canvas was put up on the after-end of this barge. This is furnished with two boat stoves and the necessary cooking utensils, and has filled every requirement for the preparation of food. A perfectly tight chamber, 5 feet 9 inches long by 4 feet 3 inches wide and reaching to the ceiling, was built in the after-starboard corner of barge 66 for fumigating purposes. The vessels have furnished two large, dry, protected, well-ventilated and well-lighted wards, with the necessary adjuncts of closet, kitchen, etc., and, being afloat, have been free from the intolerable pest of mosquitoes found nearly everywhere ashore. The barges were thoroughly cleaned and whitewashed inside before receiving the patients. In barge No. 66

are 17 cots. These are 5 feet 6 inches long by 2 feet 9 inches wide. The periphery of the cot is formed of one piece of iron piping, across which canvas is stretched. They are supported on wooden frames. These were made on the *Vixen* before the camp outfits were received. They are thoroughly comfortable. While both barges were in use the convalescents swung in their hammocks in barge 65. Before being discharged to duty all patients have had a bichloride bath (1:10,000) and their clothes and bedding have been disinfected with sulphur or formaldehyde. Convalescents have had a bichloride bath daily. With three exceptions, which ultimately made good recoveries, there were no complications in the measles cases. Two of these were cases of otitis media and one a case of broncho-pneumonia, and it is noticeable that these occurred among the first 14 patients received from the *Maine*, who had been confined aboard the ship for some days before they were transferred to the barges. In no case received aboard the barges as soon as the disease developed was there any complication.

REPORT ON A JAPANESE RED CROSS HOSPITAL SHIP.

By H. D. WILSON, *Surgeon, U. S. Navy.*

This Japanese hospital ship, formerly the *Habin Maru*, 4,000 tons, is one of four merchant vessels that have been rapidly fitted out and manned as hospital ships by the Japanese Red Cross Society, under the agreement that the ships are to be sent wherever the Japanese Government may direct.

The ship was hurriedly prepared for hospital work, and shows not only how much can be done in converting, with practically no structural changes, an ordinary merchant vessel into a very good transport ship, but also that it is impossible to take such a vessel and, with the slight alterations that can be quickly effected, transform her into a ship perfectly adapted to the reception and treatment of sick and wounded. Temporary bulkheads were created, partitions cut through, bunks built, etc., but the original plan of the ship would not permit of the passageways being made broad enough for a stretcher to be carried through, nor could a hatch be constructed to allow of the wounded being taken below in the best manner.

Stateroom bunks in a passenger ship are very low and poorly placed, when looked at from a medical standpoint, and these bunks had not been changed on this ship, but as in the case of this ship it was not intended to keep patients on board for over three days such an objection was not a serious one.

Aft is a companionway leading from the upper deck to the main saloon on the deck below. The only way to transport a patient from the deck to the rooms located here is by this companionway of narrow ship stairs. Fourteen rooms are arranged on each side of the saloon country, each being fitted for two patients, and doors have been cut so that the staterooms are made communicating. It is the intention to use these rooms for ill and wounded officers.

In the saloon country a dressing table is placed aft, while a dining table for the use of officers is in the center of the space.

Leading from the saloon country are passageways, one on each side, leading forward, with sixteen rooms opening on them from the outboard side.

Starting aft on the port side is first a toilet room and next a room fitted for X-ray work. Great care has been taken in fitting out this room, and the best instruments have been installed. The interior has been painted a dull black, and covers made for the air ports. The doors, etc., are also made light proof, so as to permit of photographic work being done in connection with the X-ray apparatus. The machine is of German make, very powerful, and fitted so that its power can be derived either from the ship's dynamo or from storage cells.

Next abaft these rooms are three rooms which have been especially fitted up for operative cases, but the bunks are low and the rooms cramped. These rooms connect with the sterilizing room, which in turn opens into the operating room.

The sterilizing room has one dressing sterilizer, somewhat similar to the cylindrical one supplied to United States naval hospitals, but smaller. In this room is also the instrument cabinet. This cabinet would be of use in a hospital, but on board ship it will be impossible to keep instruments in it when the weather is rough.

There is a complete supply of instruments of Japanese make and apparently of excellent quality.

The operating room is of good size, with modern table and fittings. The walls, floor, etc., are well covered with white enamel paint. The lighting is bad, daylight entering by only three air ports, and the artificial light is insufficient.

The last room aft is fitted as a dispensary and is complete.

The great fault in connection with the operating room is the narrow passageway leading to it, which is not wide enough to permit of a stretcher being handled.

On the starboard side of the ship rooms similarly located are fitted for petty officers.

On the deck below, formerly the cargo deck, one large compartment is fitted with bunks in tiers three deep. They are constructed of iron piping and are without springs, the mattress being laid on slats. These bunks are for the enlisted men and will accommodate about 180.

Two other compartments are fitted for nurses, the men using one and the women the other. There is also on this deck a laundry, installed with steam washing machines and a steam drying room. A complete wooden bulkhead is built across, separating the nurses, etc., from the crew.

On the upper deck is a large disinfecting machine of sufficient size to take two three-quarter mattresses and bedding laid flat. A room is also fitted for microscopical and bacteriological work.

The remaining rooms on the upper deck are for the officers of the ship and the medical staff. The medical staff consists of 4 surgeons, 1 apothecary, and 40 nurses (20 women and 20 men). The women nurses appeared to be well drilled and were evidently under military discipline, going to their stations and standing at attention as long as an officer remained in a room where they were on duty.

The ship is supposed to carry 200 patients.

Below an apartment was being fitted for embalming, the intention being to return all dead to Japan.

REPORT OF WOUNDED OF THE U. S. S. BENNINGTON AT THE TEMPORARY NAVAL HOSPITAL, SAN DIEGO, CAL.

By F. E. McCullough, *Surgeon, U. S. Navy.*

Immediately after the boiler explosion on the *Bennington*, July 21, 1905, the majority of the injured were conveyed to hospitals in San Diego. Maj. William Kneedler, surgeon, U. S. Army, equipped the barracks building of the former San Diego post (located in San Diego close to the bay), with beds and bedding from Fort Rosecrans. To this temporary hospital the patients were transferred as rapidly as their condition and the ambulance service would permit. Besides, tables, chairs, electric lights, and other necessary equipment were immediately installed, and within forty-eight hours the hospital was in an excellent state of efficiency. The ventilation of the building was excellent and the climatic conditions prevailing ideal.

On their arrival it was found that the burned surfaces had been dressed with oils, petroleum jellies, and ointments. In every case wherein a considerable surface was involved, a condition of septic absorption existed, the temperature varying from 100° F. to 105° F. with the dry skin and characteristic tensile pulse.

Profound mental depression existed in several cases on admission. This was due not so much to shock as to the fear of losing members, being permanently scarred about the face, and recovering with deformed hands, which they had been incorrectly advised, would probably result. Assurances that these would not occur, the marked rapid improvement of the subjects and the cheering encouragement of their own number soon restored the depressed to a normal mental condition. In four cases night terrors persisted for several nights.

Nine members of the Hospital Corps of the Army were sent from the Presidio Hospital, San Francisco, Cal., in response to a request from Major Kneedler, and a similar number was sent from Mare Island, Cal. This number served amply to perform all necessary duties.

The total number of cases treated was 52. The location of injuries was as follows:

	Per cent.
Arms, hands, legs, feet, and face	12
Arms, hands, legs, and feet	20
Arms, hands, and face	18
Arms and hands	26
Legs and feet	12
Legs	8
Thorax and abdomen	2
Back	2

Fracture of humerus, 1 case.

Fracture of femur, 1 case.

The large per cent of extremities involved was due to the fact that at the time of the explosion the crew were engaged in cleaning ship after coaling, and were without shoes.

The routine treatment adopted was as follows: After removing the original dressings all sloughs were trimmed away, the surfaces thoroughly cleansed by mopping with ether, and later a saturated solution of picric acid. Gauze soaked in the picric acid solution was wrapped around the members, then covered with paraffine paper, and secured with gauze bandages. The following day the bandages were removed, the paraffin paper rejected, but the picric acid gauze left intact. Quantities of picric-acid solution irrigated the wounds through the gauze, and this was continued until the solution passed out clear. On the fourth day the gauze was rejected, sloughs removed, and after thorough irrigation, a new picric-acid dressing applied.

The results of the picric-acid treatment were eminently satisfactory. No fetid odor was present at any time. When the paraffin paper was removed a pronounced odor of precipitated albumin was present, but without any suggestion of putrescence. Temperatures rapidly subsided to normal, skins lost their dryness, and a smooth, resilient pulse followed. The first dressings were necessarily very painful, more on account of the cleaning of the parts than the application of the picric-acid solution. The burning following its application would subside usually in from five to ten minutes. When the wounds were irrigated with picric-acid solution through the gauze (so that the air did not reach the burned surfaces) the dressing was practically painless.

So rapid was the improvement from this treatment, that in about the fifth to the eighth day the condition of the tissues was such as to admit of a powder dressing. Aristol one part, boric acid three parts, reduced to impalpability, was used as the dusting powder. This was thickly dusted on the parts and covered with lead foil (silver foil not being obtainable), ultimately secured with gauze bandages. This dressing was renewed daily, and when the foil was removed there was no tearing of newly formed tissues, as would have resulted from gauze. When the surfaces were covered with new skin the dressing was changed to stearate of zinc, covered only with gauze bandages. A number of furuncular infections resulted during the last week of hospital residence, but these gave no serious trouble, responding quickly to hydrogen-dioxide dressing.

A warning about the danger of picric-acid absorption and the formation of carbol-urea having been uttered by certain writers, the urine was carefully watched. Each patient was given an ounce of magnesium sulphate daily in saturated solution as a theoretical antidote. While the urine was from dark brown to red in many cases, no albumen was found in the urine and no untoward results noted.

In treatment of face burns, the formation of scabs was encouraged, and elevated only in cases of retained pus, sufficient to thoroughly irrigate with hydrogen-dioxide solution. Fingers and hands were splinted to prevent contraction, and passive motion was begun early.

One death occurred in the hospital. The post-mortem examination revealed extensive gastritis and duodenitis, of which the patient gave unmistakable evidence prior to his death. He did not, however, present symptoms of gastric or intestinal disturbance until about two weeks after the accident. These lesions were regarded as secondary to the burns. The extent of cutaneous surface involved in this case was about one-fourth of the entire body; the age of the patient, 42.

The great majority of the burns were of the fourth degree (Dupuytren's classification) and were produced by the superheated steam. Into the burns were ground ashes and coal dust. A few cases had small particles of glass, and in one, two fragments of steel deeply imbedded in the pectoral muscles.

On the palmar surfaces of a number of hands, the integument was seared and corrugated from contact with hot metal.

When the patients were transferred to the naval hospital at Mare Island 90 per cent of the cases were well skinned over, and of the remainder it appeared that in only 2 cases would skin grafting be necessary.

As soon as the condition of the patients permitted, many of the citizens of San Diego visited the patients in the hospital and presented them with every delicacy the medical staff would permit. Nothing that kind hearts could suggest or generous purses provide was overlooked. The local theaters gave several performances in the main hospital ward, musical and dramatic celebrities gave recitals, carriages were placed at the disposal of the convalescents, and books and magazines provided by the hundreds.

The total number of days this hospital was in commission was 23. From day to day the less severely burned were sent to duty as they recovered. Twenty-five were sent to Mare Island Hospital on a tourist sleeping car on August 13, accompanied by Surgeons V. C. B. Means and C. P. Kindleberger, and the hospital corps men from Mare Island.

The Army hospital corps men returned to the Presidio on August 10.

The hospital was dismantled immediately after the departure of the patients and most of the property belonging to the Navy sent to Mare Island on the U. S. S. *Bennington.*

The therapeutic lesson gained from this experience is as follows: In extensive burns oils are unsafe on account of promoting sepsis. Picric-acid treatment is ideal and safe. When death is not caused by shock it is the direct result of septic absorption.

REPORT ON AN EPIDEMIC OF DIPHTHERIA ON BOARD THE U. S. S. MONONGAHELA.

By Cary D. Langhorne, *Passed Assistant Surgeon, U. S. Navy.*

The *Monongahela* received a draft of 200 third-class apprentices from the Naval Training Station, Newport, R. I., on November 19, 1903. The ship was at this time at the navy-yard, Portsmouth, N. H., undergoing repairs.

The ship sailed from Portsmouth, December 5, 1903, for St. Thomas, Danish West Indies, where she arrived December 26, having been twenty-one days at sea. The ship remained at St. Thomas until January 30, 1904, on which date she sailed for San Juan, P. R., where she arrived January 31.

On February 8, 1904, a third-class apprentice, age 17 years 10 months, reported at the sick bay at 3 p. m., complaining of sore throat. On examination he was found to be suffering with a well-marked case of diphtheria. His temperature was 101° F., and his left tonsil was enlarged and covered with a large membrane, which spread the next morning to the right tonsil. The submaxillary and superficial cervical glands were quite swollen, and there was a good deal of prostration. He was at once isolated in the sick bay, given 2,000 units of antitoxin, local treatment, and stimulants, and transferred on the next day to the United States Naval Hospital, San Juan, P. R.

The second case occurred on the 9th; the third on the 10th; the fourth on the 16th, and on the 21st there were two cases. The cases as they occurred were isolated and transferred to the naval hospital, San Juan, as soon as practicable. The sick bay was fumigated with formaldehyde gas and washed down with a 1:1,000 bichloride solution after each case.

Preparations were at once commenced to put all the apprentices in camp, with a sufficient number of petty officers from the ship's company to look after them, and to disinfect the belongings of every one aboard and the ship itself. The camp was established at the naval station, San Juan, using the wall tents of the Marine Corps, and Sibley tents borrowed from the Army. The cooking was done under a shed in connection with an old foundry, the messing being done in the open, except in bad weather, when the shed was used. There were five small walled tents and one hospital tent pitched at a distance, so as to be completely separated from the rest of the camp, and used as a segregation camp for suspicious cases. All the tents in the camp had wooden floors. On the 23d of

February one suit of clothes and one suit of underclothes for each person and the bedding of the apprentices and men going into camp were disinfected by formaldehyde gas under pressure, the plant of the Marine Hospital Service being used. On the 24th, these boys and men were given an antiseptic bath of 1:3,000 bichloride solution, shifted into clean disinfected clothes on a lighter alongside, and transferred to the camp. The rest of their clothes were then disinfected in the same way and sent to camp.

Two cases of diphtheria occurred on board ship on the 22d, one on the 23d, and one on the 24th. They were transferred at once to the hospital. On the 25th of February one suit of clothes and one suit of underclothes for each man and the bedding of the crew of the ship were disinfected with formaldehyde gas under pressure. On the 26th the ship was ready for fumigation. The crew had antiseptic baths and shifted into fumigated clothes on the spar deck. The hatches were then closed and sulphur was burnt by the pot method, using 5 pounds to 1,000 cubic feet of space, the ship being shut up for twenty-four hours, the crew camping on the spar deck. The remainder of the crew's clothing was disinfected by formaldehyde gas under pressure and returned to the ship after she was fumigated. The next day, the 27th, the wind was allowed to blow through the ship and the inside was washed down with a 1:1,000 bichloride solution, and afterwards painted throughout.

The apprentices in camp were examined every morning by looking at their throats to see if there were any signs of the disease. Those having any inflammation of the throat were put in the detention camp and had local applications and gargle applied. On March 6 there occurred a case aboard ship, the man being a seaman, age 21 years and 8 months. He was at once transferred to the naval hospital, and the sick bay disinfected with formaldehyde gas and washed down with 1:1,000 bichloride solution. This was the first case among the crew proper, and it can be traced ashore, as the man had liberty frequently. There was one other case among the crew on March 16, a boatswain's mate, age 26 years 1 month, and he was at once sent to the hospital, and the sick bay disinfected. These two were the only cases that occurred among the crew proper. In all, there were 28 cases of clinical diphtheria and 1 case of readmission, an apprentice who had been sent back from the hospital, making 29 all told. The age of the apprentices aboard ship ranged from 16 to 18 years, this being their first cruise.

Having been furnished with a very good microscope and Koch hot-air incubator, and blood-serum tubes being sent weekly by steamer from the Naval Museum of Hygiene and Medical School at Washington, a laboratory in the hospital building at the naval station was started in connection with the camp, and on March 25 it was ready for work. Previous to this the diagnosis was verified with the microscope at the army hospital in San Juan. It was decided to take cultures from the throats of all apprentices in camp and send those free from the Klebs-Loeffler bacillus aboard ship. The apprentices were divided into groups of from 25 to 30, put into tents, and segregated from the rest of the camp. Cultures were taken from their throats and they there awaited the result of the bacteriological examination; in the meantime their bedding and clothes were disinfected with formaldehyde gas. Those found free from the germs were given an antiseptic bath and new clothes and returned to the ship. Those having the germs were segregated in tents from the rest of the camp, and their throats treated locally by swabbing with formaldehyde solution, 3 per cent, and a gargle of bichloride and Dobell's solutions. On first examination of those in camp, 189 cultures were made and 83 apprentices and 3 men, or 45 per cent, were found with the germs in their throats. These had their throats treated locally for a week and were each given 1,000 units of antitoxin, when a second examination was made. In this way the routine was continued until, in some cases, three cultures had been made. On April 21 there remained 23 apprentices and 2 men with germs in their throats and they were transferred, with a master-at-arms, to the naval hospital, San Juan, P. R. The camp at the naval station was broken up on the same day and everyone returned aboard ship, except those at the hospital. There were two cases of diphtheria among the apprentices after returning aboard ship. One case was a patient who had returned from the hospital and the second was an apprentice from camp. They were both transferred at once and no bad results followed. Cultures from the throats of the apprentices at the hospital were taken until they proved negative, and they had their effects disinfected and an antiseptic bath given them before returning aboard ship.

The nature of the cases ran from a very mild to a quite severe form. There was a membrane in every case. In four cases there was a great deal of membrane extending well over the fauces, soft palate, and pharynx. Abscess of the tonsils complicated two cases. The prostration in some of the cases was very severe, but the majority were up and around in two or three days after receiving antitoxin. The submaxillary and superficial cervical glands were swollen in nearly all cases; in a number very badly. In no cases have serious sequelæ followed. All the cases were given antitoxin as soon as the diagnosis was made and the dose repeated when the symptoms did not improve in eight or ten hours. The usual 2,000 units being given at first and repeated as often as necessary. In no case was there any bad effect from the antitoxin, and there were no deaths. This shows that the antitoxin treatment, when given in time, has robbed the disease of its former horrors. Locally, peroxide of hydrogen, Dobell's solution, and a solution of Tr. ferric chloride, chlorate of potash, carbolic acid, and water were used.

All the apprentices who did not contract the disease and also some of the men who were exposed were given a prophylactic dose of 1,000 units of antitoxin, there being 173 that received this amount. In no case was there any suppuration following the injections. In some few cases there was a circumscribed erythematous rash at the seat of puncture, which disappeared in a few days, leaving no trace. The urine of 25 apprentices was examined the morning after they received the prophylactic dose of 1,000 units, and in only one case there was a slight trace of albumin. There was only 1 case of diphtheria occurring after the prophylactic dose of antitoxin was given. In regard to the origin of the disease there is some doubt. The disease was prevalent in San Juan when we arrived, and our first case occurred eight days after our arrival, in an apprentice that played on the baseball team, and who was constantly ashore practicing. They have had 1 case in the army hospital and 3 at one private house. There was 1 case on board the U. S. S. *Gloucester*. At one time the superior board of health had 7 cases under observation, hence it is thought that the disease was contracted in San Juan.

There were 8 cases of diphtheria aboard this ship last summer, the last occurring the 26th of August, 1903. After that cultures were taken from the throats of all the apprentices before sending them on leave and all found negative. The ship was thoroughly washed down inside with 1:1,000 bichloride solution and painted after the apprentices left.

Since October 19, 1903, the day the apprentices came aboard, to February 8, 1904, there have been 22 cases of tonsillitis with one readmission, which is not an excessive number in a ship's company of 350, taking into consideration the climate while at Portsmouth, N. H., and on the trip to St. Thomas, and in no case did the disease clinically resemble diphtheria.

REPORT ON AN EPIDEMIC OF YELLOW FEVER ON BOARD THE U. S. S. BOSTON.

By H. C. Curl, *Passed Assistant Surgeon, U. S. Navy.*

The epidemic of yellow fever on the U. S. S. *Boston* began on January 19. Six cases occurred, of which 2 resulted fatally. The origin of the epidemic is uncertain and probably rests between the bringing of infected mosquitoes aboard in the steam launch and market boats, and the occurrence of a mild case among the crew about January 1. This probable first case beng overlooked served to infect the *Stegomyia* which were present in fair numbers, particularly about the after-part of the ship. A point of special interest in this connection, and one having an important bearing on the breeding of mosquitoes aboard ship in an infected port, is that larvæ were found in four division tubs, each of which contained a little water. These breeding places were the only definite ones discovered.

It can be reasonably claimed that those taken sick with yellow fever were infected by mosquitoes aboard ship, for the probability or possibility of 6 persons being infected ashore at so nearly the same time as to present symptoms on approximately the same date is very slight. Three of those infected had not been ashore for several weeks.

The medical officer of the *Boston* at the time of the development of the cases considered them cases of malaria, and did not think it necessary to report them as suspects. He performed his duties until his temperature was high and all symptoms of yellow fever had been established. He was undoubtedly influenced in his diagnosis by the number of cases of malaria occurring on the *Boston*, quite a large percentage of the crew being subject to recurring attacks, the result of their infection while serving ashore last year in the Darien district of Panama.

The symptoms in all cases were typical. Temperature charts show typical fever curve; the urine was albuminous, highly so in most cases; icterus was well marked, pain in back and head severe; vomiting, at first stomach contents and clear bile-stained fluid, became rapidly fly-specked, and later typical black vomit. In one of the fatal cases vomiting became very frequent, the ejecta consisting entirely of altered blood, with small amounts of mucus. The pulse, at first rapid, became slower, and in one case reached 51 on several occasions. In the fatal cases the pulse rate toward the last became rapid and progressively weaker, death occurring after labored efforts at respiration by direct heart failure.

In the opinion of all the medical men who saw the cases, the deaths occurred from direct toxæmia, and not from nephritis or other secondary conditions.

From the date of fumigation by the marine hospital authorities of Panama no new cases have developed. The crew has been carefully and completely examined, and all those presenting themselves with fever have been kept under observation until its nature could be ascertained.

As a test of the presence of mosquitoes on board, a number of glass jars containing clear water were placed in various out-of-the-way places about the ship and examined daily for ova and larvæ.

NOTES ON THE OUTBREAK OF YELLOW FEVER ON BOARD THE U. S. S. BOSTON IN PANAMA HARBOR.

By JAMES MILLER, Jr., *Assistant Surgeon, U. S. Navy.*

Those stricken were the paymaster, a watch officer, the medical officer, a private marine, and two mess attendants.

The officers mentioned had been ashore frequently on duty, but had always returned before sundown. No liberty had been given the enlisted force since December 10, 1904, and no one was allowed to go ashore, except on duty. Stores of all description had been taken on board during the stay of the *Boston* in Panama Harbor.

The first case occurred on January 19, 1905, and all other cases occurred within forty-eight hours afterwards.

As soon as the disease was diagnosed the ship was thoroughly fumigated with sulphur and pyrethrum. All inhabitants of the wardroom were instructed to sleep on deck and to enter the wardroom as little as possible.

Mosquitoes were found on board, especially in the wardroom, and were of the variety *Stegomyia fasciata*.

The *Boston* had been in Panama Harbor since November 14, 1904, but steamed to Chame Bay January 19 and 20, returning to Panama on January 21, 1905, and again going to Chame Bay on January 22, and returning to Panama on January 24.

No place infected with yellow fever, except Panama, had been visited by this ship.

The sharp localization of the cases is most remarkable. Of the six cases all, with one exception, were inhabitants of the wardroom, and in the one case excepted it was found that the man frequently passed though the wardroom to reach the marine storeroom.

It is important to call attention to the fact that the plasmodium malariæ may coexist with the germ of yellow fever. This was demonstrated in at least one case, that of one of the mess attendants, and, therefore, the finding of the plasmodium malariæ should not throw medical officers off their guard in diagnosing and guarding against yellow fever.

REPORT ON THE FIFTH ANNUAL MEETING OF THE AMERICAN ROENTGEN RAY SOCIETY.

By J. T. KENNEDY, *Passed Assistant Surgeon, U. S. Navy.*

The fifth annual meeting of the American Roentgen Ray Society was held at St. Louis, Mo., September 9–13, 1904.

The main subjects discussed in the papers read by the members were: Tuberculosis, malignant tumors, and fractures.

None of the subject-matter was allowed to be given out before publication in the society's journal, so only a rough epitome of the work can be presented, viz:

Pulmonary tuberculosis.—The reports of treatment of this disease were unsatisfactory, incomplete, and at variance, due to hasty deductions, imperfect observation, inaccurate diagnoses, and inexperience on the part of some of the operators. One reporter described in glowing terms successive cures solely by the aid of the rays, saying nothing of his method of diagnosis, the time of treatment, or permanency of cure, seemingly satisfied in his own mind that the rays were a true specific and no adjuvant required.

Another specialist reported no improvement or cure in his series of cases, and confessed himself as an antagonist to the use of the rays in the treatment of this disease, owing to the discouragement of the patient and a succession of burns inflicted.

Between these extremes many experienced and scientific operators advanced a number of cases testifying to the beneficial results attained through the use of the rays, supplemented by symptomatic and hygienic remedies, and established the proposition that pulmonary tuberculosis, in the stage of consolidation, may be arrested when the rays are used in conjunction with outdoor life and supporting treatment.

Less satisfactory were the results when the streptococcus had invaded the field, the action of the rays being less inimical to this germ and offering less promising results, except when used in conjunction with antistreptococcus serum. That climatic influences played a large part in the treatment of tuberculosis was shown by the statement that a Pittsburg operator had little or no success in his treatment by the rays, the suppurative condition appearing early and resisting treatment, while in Denver consolidation was the rule and responded to treatment with rays most encouragingly.

The consensus of opinion was that while the Roentgen ray is a prominent agent in the treatment of this disease, it is yet in an experimental stage and should be subordinate to other and better-known remedies.

As a means of diagnosis many operators have attained to such a degree of skill in skiagraphy that the ray may be considered in their hands a sure and valuable auxiliary to our methods of detecting even slight lesions of the lung substance.

Tubercular adenitis.—The reports of treatment consistently agreed in declaring this form of tuberculosis amenable to cure by the Roentgen ray. Even when recurring after removal by the surgeon and situated deeply, so that a delicate dissection would be necessary, exposure to the ray has been followed by cessation of growth, softening, and subsequent disappearance. A case was reported in a colored child in whom the whole chain of cervical glands had undergone caseation, rendering the patient cachectic, which rapidly healed under the application of the rays without other treatment and without recurrence.

Tubercular arthritis.—Early in the history of the Roentgen ray it was noticed that a degree of relief from pain and cessation of inflammatory symptoms accompanied the examination of a tubercular joint. From these observations it was reasonable to suppose that a beneficial action would attend the application of the rays as a remedial measure. Dr. John B. Murphy reported two cases of tuberculosis in the kneejoint involving the synovial membrane, which had been injected without effect. In one patient the effusions had existed for nine months, but under the constant application of the ray the patient improved rapidly and was discharged in twenty-one days without a particle of effusion or diminution in the range of motion in the affected joint.

The other case responded more slowly, but no less satisfactorily.

Three cases of tubercular vertebræ in which the diagnosis had been made by aspiration were treated with results no less gratifying. The first result in each case was a rapid relief from pain. Paraplegia existed in one case, and, while exaggerated during the first few treatments, subsequently disappeared, allowing the patient to resume his usual vocation, having received 23 treatments in all.

These startling results point to the X-ray as a remedy of power, which, when applied to cases in the incipiency, instead of waiting for suppuration and destruction of tissue, will bring valuable results.

Tuberculosis of the skin.—Microscopical study shows that the X ray produces destruction of epithelial cells, the nucleus and protoplasm undergoing solution. In some cells a fatty change was seen. The connective tissue elements are stimulated, leading to the filling up of cavities and formation of sound tissue. So many cases of lupus have been reported cured by the X-rays that it has been accepted as a standard procedure, and only methods of technique were discussed. The average number of treatments required is not less than forty and the period of time twelve weeks. In many cases the disease has recurred, but is readily controlled by repeating the applications. Following the treatment there is a reaction in the tissues shown by erythema and smarting, followed by drying and shedding of the scabs, a disappearance of the redness, and formation of a white scar without contraction. It is desirable to induce a distinct reaction, even to a mild burn of the first degree.

Carcinomata.—It is to be regretted that almost all the cases reported were advanced in growth, and this no doubt accounts for the lack of encouraging results, even while solitary instances of cure held out promise. Cancer of the breast in one case disappeared after 57 treatments, starting on an exposure of ten minutes daily at a distance of 15 inches. The length of each exposure was then increased to twenty-five minutes, and continued at varying intervals for eighteen weeks, with complete and permanent disappearance.

The best results in mammary cancer are obtained when the rays are used after the tumor has been excised. This seems to restore the tissue to normal, prevents glandular proliferation, and minimizes the chance of recurrence.

Epitheliomata.—From the reported results it is safe to assume that 65 per cent of cases will be cured and the remainder benefited by the X ray treatment in the hands of skillful operators. The pathological changes occurring are necrosis of cells and trabeculæ, at times fatty degeneration, increase of elastic tissue, and a tendency to occlusion of vessels by a deposit on the inner surface. Nearly all operators agree that it is necessary to produce a reaction to obtain rapid and positive results.

The affected surface should be radiated daily for ten minutes with a tube at a distance of 8 inches, including the neighboring glands in the treatment. When reaction occurs, as evidenced by erythema, to radiate every third or fourth day will be sufficiently often, and this should be continued for an average period of eight weeks. The previous use of caustics or irritants renders the action of the rays less potent, and rapid cure is not then to be expected. The cosmetic effect is most desirable, scars on the face filling rapidly and approaching the color of normal skin in a short time. Epithelioma of the lips, if recognized early, is amenable to treatment by the rays alone, but when extensive, with glandular involvement, it should be excised and the glands and scar subjected to radiation for several months.

Sarcoma.—In a series of 30 cases reported not a single case recovered, and in no case was the progress of the disease apparently influenced by the action of the X-rays. These results would be most discouraging if not supplemented by reports from other operators who have obtained cures in inoperable cases of unquestioned diagnosis, which shows either a wide variation in technique or strength of apparatus employed. The X-ray operators are inclined to believe that most failures are the result of delay on the part of the surgeon, who only invokes the aid of the ray after dallying with the patient until the disease has obtained extensive infiltration and has become inoperable.

In one case, a retro-bulbar sarcoma, the antrum of Highmore had been previously curretted, but the growth had rapidly infiltrated the sinuses. There was protrusion of the eyeball and violent pain in the frontal region, with such weakness that the patient was not expected to live and was turned over for treatment by the X-ray as a last resort.

Treatment was applied daily for five miuntes with a high vacuum tube of 4 amperes current, held at a distance of 12 inches. At the end of one month the swelling and pain had almost disappeared and the patient was able to walk from the hospital. She was then treated twice a week for one month, and once a week for two months longer, when she was apparently well and had suffered no impairment of sight. The diagnosis was verified by microscopical examination.

Diagnosis of fractures.—Skiagraphy has simplified the diagnosis of fractures and developed many minor injuries, commonly overlooked. In Colles' fracture of the wrist a series of skiagraphs show an unusual feature in addition to the radial injury, viz, fracture of the semilunar bone. This would ordinarily be overlooked and would prejudice the ultimate result if not discovered, so that the X-rays should be employed in every injury of the wrist, not merely by use of the fluoroscope, but by a complete photograph, which often brings to view injuries not manifest to the eye.

Diagnosis of brain tumors.—That it is possible to diagnose a tumor or area of softening in the brain is clearly proven by the results attained, but such a degree of skill and care is required in this procedure that it must necessarily remain in the hands of a few especially skilled operators, and then only as a secondary aid to methods less subject to variation.

Technique.—While the results following the use of the X rays are valuable and encouraging, it should ever be kept in mind that untoward results may follow careless use of this power. It has been observed that the action of the rays is due to chemical, fluorescent, and electrical qualities, varying only in degree of penetration. As all radiant phenomena have the same physical basis, the effect ranges from mere stimulation to actual destruction of tissue. Dermatitis is tropho-neurotic in origin, the X-rays penetrating the skin and causing a chemical change in the molecules of the nerve terminals. While nearly all operators agree that a reaction in the tissues is necessary, burns are to be carefully avoided by studying the individual for idiosyncrasy, making tentative application only until the personal equation is established.

The mucous membrane of the lip is especially sensitive and should be carefully protected when not involved by diseased tissue. The cornea and conjunctiva are not easily affected.

When necessary to focus the rays on a particular locality and still to protect the adjacent area, a diaphragm of sheet lead may be attached to the tube. An opening 5 inches in diameter, fitted with three adjustable diaphragms, will emit sufficient light and still control the divergent rays. The cone of light may be regulated by changing the distance of the tube from the patient.

In the treatment of nævi a high vacuum tube of 5 amperes current, at a distance of 8 inches, should be used for ten minutes daily, watching carefully for signs of dermatitis.

For acne no reaction beyond a slight erythema should be produced. In the average case about twenty to thirty treatments, extending over three months time, will clear the skin and render it permanently smooth. The hair, eyes, and eyebrows should be carefully protected.

An interesting observation was made in the course of treatment of lupus by the X rays, which may offer a valuable suggestion in the treatment of deafness. For eight years previously the patient had been totally deaf and pronounced incurable. At the end of four months she could easily hear ordinary conversation, and has now attained almost normal hearing.

REPORT ON VACCINATION, ISLAND OF GUAM.

By G. F. Freeman, *Passed Assistant Surgeon, U. S. Navy.*

In 1856 this island was depopulated one-half by an epidemic of smallpox. The last general vaccination was performed about fifteen years ago under Spanish authority. Again, in 1902, a general vaccination of the inhabitants of the island was started by the United States naval medical officers, but was discontinued after about 2,000 persons had been vaccinated. In December, 1904, the island was awakened from a long period of lethargy in regard to vaccination by the fact that a case of smallpox had come to port. By the untiring work of the medical officers this one case was all that occurred. However, it forced all to recognize the possibility of the recurrence of another severe epidemic. An unvaccinated generation had grown up and there was no vaccine virus on hand, not even for those who were directly exposed on board the ship where the case of smallpox had occurred.

The imperative necessity of general vaccination was apparent, and this protective measure was systematically undertaken. Five hundred vaccine points were obtained from the United States army transport in December, 1904, on the very day that the case of smallpox came into port on the U. S. S. *Supply*. How opportune these 500 points were can best be realized by those held in quarantine on board the ship with the daily dread of new cases appearing. On the same day vaccination was started on board the ship and the case of smallpox was removed to Cabras Island. This virus was used on board the ship and on those people who would later come in direct contact with the ship or the people from the ship. There have been received since that time 1,000 units from Manila by the U. S. S. *New Orleans*, 500 units by mail on the United States army transport of January, and 3,000 units on the U. S. S. *Solace*, from Manila, in February. The entire personnel of the naval station and of the cable station, and all civilians and laborers connected with each, several families at Sumay, the school children and many families at Agaña have been vaccinated. In all, up to the present time, about 5,000 units of vaccine virus have been used, there being many revaccinations. With the supply on hand and the monthly supply which it is hoped will begin in March, there will be sufficient virus to continue the work thoroughly and completely. A tabular view of the work up to the date of March 18 is appended.

Number of persons found with successful scars	2,298
Number of persons vaccinated	4,665
Number of successful vaccinations	2,360
Per cent of successful vaccinations in persons with previous successful scars	29
Number of revaccinations	237
Number of successful revaccinations	103
Per cent of successful vaccinations	66
Per cent of successful revaccinations	43
Total per cent of final successes	69
Per cent of success in children under 10 years of age (many previously vaccinated)	79
Per cent of success in persons over 10 years of age	59.5
Vaccinated and awaiting result; not included in the above statistics	1,330

Of this report 3,036 persons were from Agaña, the capital city, of over 7,000 inhabitants, many of whom had been vaccinated, as noted in report.

The total per cent of success in Agaña was 60. In Agat, Sumay, etc., distant pueblos, the percentage of total success was 78; of the children under 10 years, 96 per cent; over 10 years of age, 61 per cent. Total success on U. S. S. *Supply*, 25.47 per cent. No serious lesions have occurred thus far from vaccination.

The plan in use provides for the present needs of the island, but the future must also be considered, or the present condition will recur. In prevaccination times, smallpox was very largely a disease of childhood. In later years, due to infantile vaccination, the main incidence of the disease has been transferred to the later periods of life. Vaccination obtains its greatest efficacy in children under 5 years of age, and under 10 years of age the efficacy is much greater than in the later periods of life. Furthermore, revaccination has an important bearing upon the degree and permanence of the protection afforded, as well as on the case mortality. Early vaccination must be provided for, and revaccination at some subsequent time. It seems most feasible to vaccinate all children within three months of their birth unless, on account of the state of their health or some other good reason, the health officer decides best to postpone vaccination. Furthermore, every child entering the public schools should be examined and vaccinated. There are about 2,000 school children on the island, and this would be the best method of insuring a generation thoroughly protected by vaccination.

REPORT ON THE PLAGUE HOSPITAL, BAHIA, BRAZIL.

By MORTON W. BAKER, *Assistant Surgeon, U. S. Navy.*

While at Bahia, Brazil, an exceptional opportunity was offered the medical officers of the South Atlantic Squadron for visiting the plague hospital there, and through the courtesy of the officials in charge of studying the cases both clinically and bacteriologically. The disease in question has existed at Bahia more or less constantly for several years past, having been originally brought, it is supposed, from Europe. It is claimed that the infection here is by no means so virulent as in the East, and that there is therefore a corresponding reduction in the death rate. The hospital is well isolated, being a mile or more from the city, situated on a picturesque point of land overlooking the sea. All the buildings and accessories are admirably equipped, not only for treating and studying the disease, but also for preventing its further propagation and extension. The visitor is first admitted into a spacious room where he is inoculated with the protective serum and vaccine. Thence he is taken into a smaller room, and, after divesting himself of all clothing, is made to put on clean slippers and a sterilized jacket and trousers. From here he passes through a bathroom into an open space where there is a place of detention for suspects and a disinfecting apparatus for clothing, bedding, etc. The hospital proper is located on a hill some 400 yards away. Formerly a private residence, this building has been purchased by the Government and now consists of several well ventilated wards, a laboratory, and other accessories. Lack of space forbids any detailed discussion of the clinical aspects of the cases there seen. Mention should be made, however, of the fact that conspicuous merit is claimed by the physicians in charge for the therapeutic advantages of the serum; and an examination of several of the clinical charts would seem to substantiate this statement, as it was noted that after injections of the serum there was a diminution of temperature more or less marked, as well as amelioration of other symptoms. Equally interesting was the laboratory and the specimens therein exhibited. As an evidence of the accuracy of their methods, every suspected case, however well marked the clinical symptoms, is kept in the detention building until the microscope confirms the diagnosis.

There were shown well-stained specimens of the bacillus pestis, taken from the blood of affected cases, as well as a beautiful specimen of the sputum from a case of the pneumonic type which was literally teeming with the organisms. Before leaving the grounds the visitor is compelled to take a thorough bath as well as other appropriate means of sterilizing his person. The subject can not be dismissed without adverting to the after-effects of the prophylactic injections there administered. Three medical officers were inoculated, the site of preference being the subcutaneous tissues of the abdomen. The injection consisted of about 20 c.c. of the serum of an immunized animal, together with a small amount of vaccine—the latter being a sterilized boullion culture of the bacillus pestis. In every individual case within a few hours there was marked local reaction, more or less inflammatory in character, with constitutional symptoms of malaise and slight temperature. All of these primary symptoms abated within forty-eight hours. After about five days the original site of inoculation again became somewhat indurated and painful, synchronous, with which in one case there was a pronounced general urticaria and slight swelling of the inguinal, cervical, and axillary lymphatics on both sides. In another case, at about the same time, the local reaction was less pronounced, but there was considerable erythema for several inches around the site of injection, together with a local urticaria-like eruption and some slight swelling and tenderness of the inguinal and axillary lymphatics of the right side—the injection being administered, in this case, on the corresponding side of the abdomen.

In the third case the primary symptoms were more pronounced, but, as in the two cases just mentioned, all symptoms abated within forty-eight hours. After a like interval of time there was a general erythema and some slight swelling of the inguinal and axillary lymphatics. In every case all these secondary manifestations subsided within thirty-six hours and no untoward after effects were thenceforward observed.

SELECTED MEDICAL, SURGICAL, AND SANITARY NOTES FROM SHIPS, SHORE STATIONS, AND HOSPITALS.

UNITED STATES NAVAL HOSPITAL, MARE ISLAND, CAL.

(*Note.*)

M. H. SIMONS, *Medical Director, U. S. Navy.*

Distomiasis.—A patient, aged 52$\frac{2}{12}$ years, was admitted to the hospital March 1, 1904, and died March 17, 1904.

His disease was diagnosed as distomiasis, and two of the parasites were found in the stools. They were identified as distoma sinensis, common in Japan.

According to the statement of friends and relatives, between the years 1890 and 1894 the patient and his wife resided for a time in Japan, and lived according to the native fashion. Both of them began to suffer shortly afterwards from trouble with the digestive tract. The symptoms were obscure, but eventually pointed to hepatitis as the most prominent trouble. The wife died a few years ago with, as stated by her father, very much the same symptoms as her husband showed during his last illness.

He was admitted to the sick list some time in December, 1903, with symptoms pointing to abscess of the liver, and the distoma were found at this time. The patient arrived at this hospital in a state of extreme exhaustion, but rallied within twenty-four hours. He was placed on a milk diet, with strychnia, morphia, digitalis, saline enemata, and saline subcutaneous injections as needed. On the third day after admission the patient was delirious, and an aspirator needle was introduced between the eighth and ninth ribs and 2,000 c. c. of thick bloody pus removed. The opening was then enlarged along the needle to admit the largest size (No. 4) drainage tube, the patient being too weak to take an anæsthetic or to permit the excision of a section of rib. The symptoms immediately improved, delirium ceased, appetite and strength increased rapidly, and the area of liver dullness was much diminished, but over the situation of the gall bladder there was a large tumor. After six or seven days there was slight delirium at night, an increase of temperature to 102° to 103°, and evidence of increasing suppuration and septicæmia. The discharge from the wound had been, during this time, 60 to 90 c. c. of thick pus daily. The opening was enlarged under cocaine to admit the finger, and a tense wall was felt interiorly. A large trocar and canula were pushed through this and about 1,500 c. c. of very thick pus removed. A metallic tube was tried for drainage, but a large rubber one was soon substituted, and fully 120 c. c. of pus drained out every day from this last abscess. The abscesses were washed out daily with bichloride solution. The patient rallied for two days after the second operation, but soon began to sink, and died of exhaustion seventeen days after admission. The tumor, supposed to be the gall bladder, disappeared after the second operation.

The necropsy disclosed a gall bladder of about normal size, but with thickened walls; no distoma were found in it, but the large abscess could be traced directly down upon the cystic duct, and a chain of small abscesses led from the duct through the remaining liver tissue of the right lobe. The left lobe of the liver was normal. No distoma were found in the pus or liver. The inflammation had evidently distroyed them. The brain was not examined. There was slight diplopia for two days. The kidneys were normal.

Visceris ruptio.—An apprentice seaman, aged 21$\frac{8}{12}$ years, on December 7 was running down a stairway at the naval training station, San Francisco, with a bucket of water when he fell over the side, a distance of 14 feet, striking the left side of the abdomen, in the hypochondriac and hypogastric regions, on the top of a newel post. Moderate shock with acute pain and tenderness in left iliac region immediately followed. Hæmaturia, marked tympanites, a temperature of 101.6°, and a pulse of 100 were noted in the next six days.

On admission to this hospital, December 13, the patient complained of great pain and tenderness in left abdomen. Examination showed temperature 100.2°, pulse 120, marked prostration, and the abdomen was much distended on the left side by a large tumor, the boundaries of which were well marked. At 2 p. m. of the same day laparotomy was performed, and the tumor found to extend from the median line to the diaphragm above and the umbilicus below; the peritoneum and omentum were much hypertrophied, and of the former a circular sac, looking very much like the heart in shape, had been formed; this sac had been ruptured posteriorly by the blow and the mesenteric vessels had been torn across. A large blood clot filled the tumor, extending into the abdomen and up into the chest through a large tear in the left leaflet of the diaphragm. The peritoneum, omentum, and mesocolon were all involved in the tumor, and the abdominal organs were more or less displaced. The mesenteric blood vessels were very much enlarged and the hemorrhage came from them; the interior of the sac showed several adhesive bands, which were 1 to 2 inches long, and which gave it an irregularly pouched appearance. Microscopic examination showed the walls of the tumor to consist of hypertrophied peritoneum, fat cells, etc.

The sister of the patient stated that a tumor had been known to exist for a number of years. The patient died exsanguine during the operation.

UNITED STATES NAVAL HOSPITAL, WASHINGTON, D. C.

(*Note.*)

G. P. BRADLEY, *Medical Director, U. S. Navy.*

Sarcoma (sternum).—A private marine was admitted to the hospital September 22, 1903. The glands on left side of neck were enlarged and a swelling was present over the sternum. The glands on the right side of neck had been removed some six months previous to admission. The man became anæmic and lost flesh and strength. The glands in both axillæ became enlarged, tumor of sternum became more prominent, apex of left lung began to show consolidation, and the urine, upon examination, showed a small quantity of albumen, was of a low specific gravity, and contained hyaline and granular casts. Just before death, for a period of a week, the patient had numerous epileptoid convulsions. Death occurred March 8.

Autopsy showed a large lympho-sarcoma of sternum, which had involved the left lung and all the mediastinal glands. The heart was displaced backward by a cyst the size of a large hen's egg. Left kidney showed marked amyloid changes and was much enlarged. Capsule was not adherent. Right kidney showed beginning amyloid changes, as did also the spleen.

UNITED STATES NAVAL HOSPITAL, CAVITE, P. I.

(*Note.*)

P. A. LOVERING, *Medical Inspector, U. S. Navy.*

Vulnus sclopeticum.—There were four cases of gunshot wounds admitted during the quarter ended March 31, all from the *Albany*. On January 26, while the ship was at target practice, a Colt automatic gun, caliber .30, jammed, and was dismantled and placed on deck. While being overhauled a cartridge exploded, the bullet wounding four men in the legs.

The first one struck, a sergeant of marines, sustained the most severe wounds. On examination it was found that the bullet had entered at the junction of the lower and middle thirds of the right leg, striking the anterior border of the tibia, guttering it, and producing two radiating fissures; passing from without inward and from before backward, it cut the anterior tibal artery; fragments of bone tore away a large area of skin and tissue, making a wound 5 inches long and 3 inches wide, just below the calf. The anterior tibial artery was tied in two places and the wound dressed under an anæsthetic. The patient had lost much blood and was in a state of extreme collapse when admitted, about three hours after he was wounded. There was no pulsation in the carotid or radial arteries. Under repeated injections of normal salt solution he slowly rallied and continued to progress fairly well until January 31. Slight symptoms of tetanus then appeared, such as moderate pain in muscles of face, some stiffness of the muscles of the jaw, and a little difficulty in swallowing. The next morning the muscles of the neck were somewhat involved, and the corners of the mouth slightly drawn down. He could swallow without much trouble. At 11.45 a. m. the same day, immediately after the wound was dressed, he had a spasm, which yielded to treatment (morphine and chloroform). Twenty minutes later a second spasm occurred, and in a few minutes he was dead. The wound had been treated most carefully and appeared to be progressing favorably. No opinion can be formed as to the source of infection.

At the same time an ordinary seaman was wounded in the middle third of the right leg. The bullet passed under the skin, forming a superficial sinus about 3 inches long. The tibia was slightly denuded, and in the wound was found a crumpled fragment of the jacket of the bullet. Later, several small pieces of the same jacket were taken out.

Another seaman received a wound about 3 inches long in the lower part of the left leg, the bullet emerging just above the external malleolus. Small fragments of the metallic jacket were found in the wound.

An apprentice, first class, also, was hit in the lower part of the left leg, receiving a lacerated wound about 3 inches long and half as wide. Many small fragments of the jacket were removed from the wound both at the time of admission and later.

In these cases two facts are worthy of remark, viz, the damage caused by a single bullet at short range (15 to 20 feet) and the stripping off of the metal jacket which covers the leaden bullet. The wounds were quite severe and much lacerated, so that at first it appeared that there was considerable loss of tissue, but it is thought that the large gaping wounds were caused principally by the reaction of the muscles. The metal jacket was broken into many fragments ranging from a piece one-third of an inch in diameter to bits the size of coarse sand.

The medical officer of the *Albany* reports a fifth case injured by this bullet, in a gunner's mate, who received slight wounds of the penis and great toe.

U. S. S. TEXAS.

(*Note.*)

J. C. Byrnes, *Surgeon, U. S. Navy.*

Necrosis.—About four years ago, during the China campaign, an officer received a gunshot wound in the right thigh, resulting in a compound comminuted fracture of the right femur, just below the great trochanter. He was treated at the naval hospital, Yokohama, Japan, for several months, and during this time several pieces of bone and a fragment of bullet were removed. Some time after leaving the hospital a sinus formed, opening on the outer side of the thigh in the anterior part of the old scar, and from time to time small fragments of bone and pus have been discharged through the opening. The right leg is noticeably shorter than the left.

On June 5, 1904, he complained of a soreness back of the right thigh and just below the fold of the buttock, and attributed the trouble to a small hard lump just beneath the skin, which, according to his statement, had been there since he was wounded, but had never before given him any trouble. On June 7 the body was removed under cocaine, and proved to be a fragment of bullet and cartridge case, encapsulated just beneath the skin and superficial fascia. Notwithstanding the removal of the fragment, soreness and pain continued and became most pronounced just below the buttock and on the outer side of the thigh, where, on examination, an ill-defined, somewhat movable induration could be detected.

On June 24 he was examined by X-ray in Norfolk, and the skiagraph showed considerable thickening about the upper and inner portion of the shaft, also a well-defined shadow on the outer side, in which could be seen small fragments of solid matter.

On June 25 an aspirating needle was inserted into the swelling, and a few drops of pus were obtained. Microscopical examination showed broken-down pus corpuscles and numerous collections of granular débris, but no bacteria.

Patient is evidently suffering from a chronic abscess about the shaft of the femur. On recommendation of the medical officer he was detached from the ship on June 26 and ordered home.

U. S. S. TEXAS.

(*Note.*)

J. C. Byrnes, *Surgeon, U. S. Navy.*

Hernia (*strangulated*).—The patient, a musician, first class, was admitted to the sick list about 9.30 p. m., June 13, 1904. At that time he complained of diffuse abdominal pain, with tenderness in right iliac fossa. Had vomited once, and had one movement of the bowels. Temperature, normal; pulse, 90. Physical examination showed a swelling over the right inguinal region, very tender on palpation, tympanitic, and irreducible. According to the patient's statement he had suffered from a hernia about four years ago, but it had disappeared and had never given him further trouble.

Between 12.30 p. m. and 1.30 a. m. he vomited several times and the swelling increased in size. Continued attempts at reduction proved fruitless, and an operation was decided upon as the only means of relieving the condition.

At about 1.30 a. m. the patient was etherized and placed on the operating table. An incision was made over the swelling, about 4 inches in length, parallel to Poupart's ligament. On retracting the edges of the wound a loop of the small intestine was seen, much distended and of a dark red color. The gut appearing sufficiently healthy to recover, it was decided to replace it, and the wound closed, a small opening being left in the lower angle for drainage.

Patient's condition at this time was fairly good. He was given one-fourth of a grain of morphia sulphate and put to bed. Later he was transferred to the naval hospital, Norfolk, Va., where he ultimately recovered.

U. S. S. NEWARK.

(*Note.*)

A. C. H. Russell, *Surgeon, U. S. Navy.*

Venereal diseases at San Juan, P. R.—The *Newark*, during the year 1904, made five visits to San Juan and remained there in all forty-one days, during which period the crew contracted 135 cases of venereal disease, including 8 cases of syphilis; and there were probably other cases that were not reported.

From these infections there resulted 1,406 sick days. In other words, these cases caused the Government to lose the services of 1 man for 311 days and those of 3 men for 1 year.

Nearly one-fourth of the crew were infected with venereal disease at one time.

In the third quarter of the year there were 416 sick days from venereal buboes alone.

As all ships of the squadron, which gave liberty in San Juan, had a similar experience, it can be seen what an amount of suffering to the men and loss of time to the Government resulted from venereal infection at that port.

In view of this appalling prevalence of venereal disease and the injury caused thereby to the health and efficiency of our men, it is deduced that giving liberty at San Juan does our crews and the service vastly more harm than good.

U. S. S. COLUMBIA.

(*Note.*)

E. H. MARSTELLER, *Surgeon, U. S. Navy.*

Vulnus sclopeticum.—The patient, a bugler, went with a landing party at Santo Domingo on February 11. He was in the act of getting out of the boat, with revolver in hand, when he slipped, and in some manner accidently discharged the weapon. The ball entered his chest at about the region of the apex of the heart; it then took a course either through the thoracic cavity or around its wall and finely lodged in the muscles of the dorsal region, midway between the spinal column and the scapula. An incision was made and the bullet removed the following morning. Recovery was rapid, and in thirteen days after the accident the man was restored to duty.

U. S. S. PRAIRIE.

(*Note.*)

F. W. F. WIEBER, *Surgeon, U. S. Navy.*

Venenum.—A case of bichloride of mercury poisoning occurred on board. The dose swallowed by mistake was 30 grains in four tablets. The poisoning was immediately reported to the hospital steward and by him to the medical officer. A stomach tube was inserted and apomorphia administered hypodermically. Free vomiting soon assisted the lavage tube in emptying the stomach of all its contents.

Fortunately the patient had partaken of a hearty breakfast, in consequence of which the lining membrane of the stomach was protected against the immediate effect of the irritant. After emptying the stomach, milk and eggs were administered. No sign of irritation resulted.

U. S. S. HARTFORD.

(*Note.*)

A. M. D. MCCORMICK, *Surgeon, U. S. Navy.*

Vulnus laceratum.—A musician, second-class, an Italian, was bitten by a fellow bandsman, also an Italian, while fighting. The middle third of the upper lip was completely torn off, being afterwards picked up on deck. The laceration extended to the left nostril and produced the effect of a double hare-lip. The edges of the wound were approximated with numerous silk sutures, all the elasticity of the parts being required for the coaptation of the edges. The full-lipped appearance of his mouth was entirely changed. The wound healed readily, leaving a linear scar, which became invisible under a mustache, and the lip lost its appearance of tension. The man was a solo clarionet player, and this particular mode of maiming him seemed to be chosen by his antagonist to interfere with his vocation. Certainly the restoration of his lip was of vital importance to him.

U. S. S. AMPHITRITE.

(*Note.*)

C. DE W. BROWNELL, *Surgeon, U. S. Navy.*

Asphyxia.—A hospital apprentice, first-class, was found dead on the dispensary table at 9 p. m., April 24, 1904. He was lying face downward with his mouth and nose pressed into a pad of cotton which was held by his right hand. Death had occurred some time before, as there was pronounced rigor mortis. The dispensary door had been locked on the inside. The man was last seen alive about 5 p. m. of the same day.

Although no odor of chloroform was detected, the cotton over the mouth and nose was undoubtedly saturated with it when he lay down, after locking himself in the dispensary. The absence of the odor of chloroform was accounted for by the time that had elapsed since it was self-administered, and the fact that the deck light was open and an electric fan running in the dispensary. Upon investigation it was learned that the man had not infrequently indulged in the use of chloroform, and about 2 ounces were missing from the opened bottle in the dispensary, which could not otherwise be accounted for.

He had stated to the hospital attendants that he had experimented with the drug; was once suspected of using it by the hospital steward, to whom he explained, when called to account, by saying he had accidentally spilled some, and was observed by one of the patients on several occasions to inhale chloroform. This patient upon examination identified the anesthetic without hesitation. There was no evidence of struggle, and everything in the dispensary was in order. The man's face was cyanotic; the pupils regular and slightly contracted; the lips and nose were slightly excoriated. At the necropsy held on the following day, the right heart and lungs were found full of dark, fluid blood; the stomach, liver, and kidneys congested; and the mouth, esophagus, and intestines normal. The contents of the stomach, tested by such means as were at hand, showed no evidence of poison. From the inhalation of the concentrated vapor, primary narcosis must have developed rapidly, and the weight of the head pressing the mouth and nose down into the damp cotton resulted in asphyxia.

U. S. S. VICKSBURG.

(*Note.*)

H. D. WILSON, *Passed Assistant Surgeon, U. S. Navy.*

The wounded aboard the Russian cruiser Variag, at Chemulpo, Korea.—Immediately after the Russian cruiser *Variag* had returned from the fight with the Japanese fleet and had anchored, I was directed by the captain of this ship to go on board and offer to do anything possible in assisting in the care of the wounded. The Russian commander accepted the offer and requested me to go below where the wounded were being carried.

The medical officers from the French, English, and Italian ships were on board at work, having arrived before me, as their ships were anchored much nearer the Russian vessel.

Most of the dead were on deck as they had been instantly killed at the guns; the wounded were being carried below, each medical officer selecting a convenient place to dress them. It was impracticable to do more than apply dressings of a most temporary character, as there were so many cases needing immediate attention, and as it was not known but the Japanese would resume the fight at any time, the Russian ship not having surrendered when she returned to the inner harbor.

The greater percentage of the wounds were of a serious nature, as all had been caused by the explosion of large shells, 8 and 10 inch.

Of the wounds dressed, nearly all were in the lower extremities, which is accounted for by the fact that while many were hit in various parts of the body, the pieces of shell, etc., were so large as to cause death when they struck the body or head.

No attempt was made to perform operations, and as soon as dressings were applied the wounded were put in boats and taken to some of the foreign ships, as the Russian captain intended to leave his ship and sink her. I offered to send any wounded on board the U. S. S. *Zafiro*, which was in port, as the commanding officer of the *Vicksburg* had directed me to proffer her services for the wounded. The offer was declined by both the captain and the executive officer of the *Variag*, they informing me that there was sufficient room on the other war ships.

The Russian ship had as good, if not better, sick-bay accommodations than the average vessel, but they were totally inadequate to the demands after this battle.

This engagement shows that it will be impossible to properly attend the wounded during an engagement between modern ships unless the number of medical attendants is greatly increased. With the present number the wounded would be obliged to largely shift for themselves until the fight were over.

In this battle the ships were from 3,000 to 7,000 yards apart, and the actual firing did not last over twenty-five minutes, yet 100 men were disabled. It must also be taken into consideration that in the fight the main battery only was used, the ships not being hit once by rapid-fire projectiles.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

E. M. SHIPP, *Surgeon, U. S. Navy.*

Fracture (patella).—A sergeant in the Marine Corps, aged 38 years and 9 months, first fractured his right patella about seventeen months ago, while serving on board the *Newark* in South America. He was sent to a civil hospital in Montevideo, where the fragments were wired; good union resulted and he was returned to duty. On the 15th of April, while serving with the marine battalion at Empire, Isthmus of Panama, he fell down a stairway, during an inspection, and refractured the right patella. A posterior straight splint was applied to the leg, with figure-of-eight adhesive plaster strips to keep the fragments in apposition, and after five weeks a plaster of Paris dressing was applied. The patient was then surveyed and two and a half months after the injury had been received, he arrived here. Fairly good ligamentous union had taken place, but there was some anchylosis of the joint, as the patient only had 30° of flexion.

On July 23, while on liberty, he fell and again fractured the right patella. When brought back to the hospital the knee was greatly swollen, with marked fluctuation of the joint and complete separation of the two fragments of the patella to the extent of a finger's breadth. After treating the joint for six days to reduce the swelling, etc., the patient was prepared for operation, and the fracture exposed by an elliptical incision.

The fragments were found to be separated by numerous blood clots and a fringe of capsule and fibrous tissue. The tissues showed evidence of recent traumatism and were thickened from numerous old adhesions. The edges of the upper and lower fragments were covered with thick fibrous tissue, the remains of the ligamentous union. The second fracture had left a very irregular surface, consequently the edges could not be freshened by removing a thin section with a saw. All the fibrous tissue had to be removed by curetting. The lower fragment was found to be very soft when the drill was used, but held sufficiently well when the two silver wires were in place and the two fragments brought together.

The wound was closed, a position splint applied, and the patient put to bed with the heel elevated to relax the quadriceps.

The patient never had an untoward symptom, and at the end of four weeks was allowed to go around with crutches, the leg having been put up in plaster. In six weeks he began to use the limb freely, and now has about 70° of flexion. A radiograph taken recently showed perfect apposition and firm union.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

E. M. SHIPP, *Surgeon, U. S. Navy.*

Monoplegia with choreiform movements.—The patient, a young man 22 years of age, enlisted May 28, 1904, and was admitted to the hospital five days later with a diagnosis of traumatic chorea.

He gave a history of having received a severe blow over the left temporal and parietal region about four years before enlistment, and of having been unconscious for several hours after receiving the injury, bleeding freely from the left ear and from the nose. There was no evidence of a depressed fracture of the skull at the time, and after a short period he felt entirely well, with the exception of an unusual sensitiveness of the region injured. About one year later he was suddenly seized with choreiform movements of the head and neck, accompanied by paralysis of the left arm and hand; also complete loss of sensation over the left side of the face, neck, and arm, some disturbance of vision of the left eye, and marked impairment of hearing in the left ear. The attack, lasting about two weeks, finally passed off, leaving him in practically a normal condition, except for the sensitive spot referred to above.

There were four subsequent and similar attacks, each lasting about two weeks.

On admission to this hospital he was found to be suffering from rythmical movements of the head and neck, paralysis of the left arm and hand, total loss of sensation of the left side of the face, neck, shoulder, and arm, absolute loss of hearing in the left ear, and disturbance of vision of left eye, patient being unable to read white on black. There was an inability to separate the teeth more than one inch or to protrude the tongue; speech and deglutition normal. The right side of the nape of the neck and the left side of the head were found to be extremely sensitive, the slightest pressure over these regions producing in the patient the sensation of an electric shock. He also complained of severe headache, and stated that during the hot summer weather he invariably suffered from nose bleed every day, and frequently had three and four attacks a day, and that the hemorrhage was always from the right nostril.

It is believed that the patient sustained a fracture of the internal table and also of the base of the skull as the result of the blow received four years ago. In this connection it is interesting to note that the first attack of paralysis developed one year after the injury had been received, and affected the left arm; also that all subsequent attacks have been confined to the same group of muscles. Under bromides and rest the condition gradually passed off, and the patient appeared to have fully recovered.

U. S. S. BOSTON.

(*Note.*)

H. C. CURL, *Passed Assistant Surgeon, U. S. Navy.*

Raynaud's disease.—The patient is a seaman 28 years of age; a "poultry grader" by trade. About six months ago he began to notice a continued coldness and tingling in the tips of all his fingers and toes; the tips would at times be blanched and the tingling sufficient to keep him awake at night. He reported at sick call on March 19, and examination showed all the finger tips cyanotic, with an area on the end blanched and painful on pressure. Several toes were in the same condition. A few days later blebs formed on the finger ends and the epidermis was raised by a serous and sero-purulent exudate. It became necessary to evacuate the contents of these, and the fingers were dressed daily. The amount of cyanosis and coldness varies from time to time; it was distinctly worse during our stay at Callao, where the temperature was 10° to 15° F. lower than at Panama. His condition is of sufficient gravity to necessitate a survey.

As an etiological factor in this case, attention is called to patient's occupation. For some years prior to entering the service he worked in large cold-storage plants, sorting game. The temperature was usually about 30° F., and while he denies ever having had frozen fingers, he worked for a long time in this freezing temperature handling frozen fowls. There is no history of injury and, aside from this condition, the patient is normal. He is a well developed, muscular man with good color and well nourished.

U. S. S. PISCATAQUA.

(*Note.*)

F. M. MUNSON, *Assistant Surgeon, U. S. Navy.*

Shark bite.—On November 2, 1904, a boatswain's mate of the *Piscataqua*, then lying in the inner harbor of Olongapo, P. I., was, while bathing from the side of the ship, bitten on the foot by a shark. The man had a good view of the shark and there can be no doubt as to the identity of the species of fish.

The two arc-shaped bites, one on the dorsal and one on the plantar surface near the toes showed unmistakably the marks of three rows of teeth in each lacerated wound. On the dorsum the skin was torn from the underlying tissues for 2 inches, two tendons and several branches of the dorsalis pedis artery were severed. One of the tarsal bones was crushed into small fragments. On the plantar surface the thick fascia was torn away about 1 inch.

As soon as the man was lifted out of the water an aseptic dressing was applied by the hospital apprentice and the medical officers sent for. As the wound was bleeding profusely, a tourniquet was applied and the man immediately taken ashore and placed upon the operating table; the fragments of bone were removed, the arteries ligated, and tendons sutured; the fascia on the plantar and the skin on both surfaces sutured; through and through drainage being secured by a rubber drainage tube left in the wound. The man was sent to the naval hospital at Cavite the following day and recovered, some stiffness of the foot remaining.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

J. L. Belknap, *Assistant Surgeon, U. S. Navy.*

Syphilis insontium.—A private marine, 23 years and 10 months of age, was admitted to the hospital, giving a history of "sore throat" of about three months' duration. He had been treated for ulcerative tonsilitis without improvement. Examination showed his throat to be reddened, with left tonsil much enlarged, indurated, and containing an ulcerating fissure about three-fourths of an inch long; one or two small mucous patches on posterior pharyngeal wall; a firm, but slightly tender, lymphatic gland about the size of a walnut below left ramus of inferior maxilla; numerous small, hard, discrete, painless, freely movable lymphatic glands in neck, axillæ and groins; many small oval or circular erythematous macules were scattered over trunk, arms, and thighs; no evidence of any form of lesion on genitals.

After admission he complained of nocturnal headaches, insomnia at times, and numerous rheumatoid pains. His condition has improved rapidly under mercurial treatment, especially his throat, as the left tonsil is now much smaller and less indurated, and the gland below the left jaw is about half the size it was on entrance. The patient denied venereal origin, but stated that he had been in the habit of smoking a friend's pipe. The friend was treated for syphilis in this hospital only a few months ago.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

J. L. Belknap, *Assistant Surgeon, U. S. Navy.*

Tuberculosis miliaris acuta.—A fireman was admitted from the U. S. S. *Kentucky* on May 31, 1904. He enlisted December 21, 1900, and had excellent health until eight days before admission, when he complained of a pain in his chest, cough, with considerable whitish expectoration, frequent chilly sensations, but no real chills, frequent sweats during the early evening hours, poor appetite, and general malaise. Temperature ranged from 100° F. to 102° F.; pulse from 80 to 90; respiration from 18 to 22. Family history unknown; past history and habits good. Examination on admission gave the following physical signs: Tongue moist, with moderate white coat; just to left of sternum maximum, at third left costal cartilage, was heard a harsh, grating friction sound during systole not transmitted or affected by respiration; many medium moist râles at bases of both lungs, with occasional sibilant and sonorous râles throughout right axilla, and slight tenderness in umbilical region. The only changes from the symptoms and signs noted on his entrance examination were that his tongue became heavily coated, mouth foul, skin dry, occasional fine moist râles were heard scattered throughout both lungs, the friction sound became audible over the entire præcordia, but later less loud and limited to a small area, and the area of cardiac dullness became slightly enlarged to the left.

Blood examination showed a leucocyte count of from 4,400 to 6,200; rarely a small ring-form malarial parasite and negative widal reaction. Urine analyses were negative, excepting a positive diazo reaction. Tubercle bacilli were not demonstrated in his sputum. Temperature ranged from 96° F. to 103° F.; pulse from 72 to 105; respiration 15 to 28. Patient soon became delirious, and was comatose twenty-four hours before his death, which occurred twelve days after admission.

The diagnosis of tuberculosis miliaris acuta, complicated by pericarditis with effusion, was arrived at by exclusion and verified by the following post-mortem findings: Pericardium thickened and roughened, with many fibrous adhesions, and containing about 6 ounces of sero-purulent fluid; heart covered with a fibrinous exudate; numerous pleuritic adhesions on both sides; both lungs studded with miliary tubercles varying in size from a pin head to one-eight inch in diameter, and slightly œdematous; enlargement of lymphatic glands in axillæ; also, general enlargement and caseation of mediastinal and mesenteric glands; liver firmly adherent to diaphragm; a few small tubercles in spleen; numerous adhesions of all the abdominal viscera, particularly marked in the small intestines, and many tubercles scattered throughout the peritoneum.

UNITED STATES NAVAL HOSPITAL, NEW YORK, N. Y.

(*Note.*)

D. C. CATHER, *Assistant Surgeon, U. S. Navy.*

Acute Myelitis.—This case was of interest for the following reasons: First, because of the slightness of the apparent cause; second, because of the typical symptoms of myelitis; and, third, the confirmation of the diagnosis by the necropsy.

The history of the case is as follows: On August 10, 1904, while lifting a heavy sack of potatoes, the patient sprained his back severely. He complained the next day of severe pain in the muscles of the back and along the spine, which grew worse from day to day and radiated into his limbs. On admission to the hospital, six days after the accident, he seemed to be suffering intensely; the slightest movement caused him to cry out with pain, and he had retention of urine and feces, requiring catheterization and laxatives. There was also total paralysis of motion and loss of sensation involving the lower half of the body. Several days after admission he developed incontinence of urine and feces; abdomen became distended and tympanitic, due to paralysis of the muscular walls of the intestines; bedsores developed over the sacrum and wherever skin surfaces came in contact; respiration became embarrassed and prolonged, and sensation was lost in his hands, with partial paralysis of motion. Although the most careful attention was given him, he gradually sank lower and lower until the seventh day after admission, when death occurred.

The necropsy showed two small abscesses deep in the muscles of the back, one on either side of the spinous process of the seventh dorsal vertebra. These abscesses communicated with the spinal canal by a small opening between the laminæ of the seventh and eighth dorsal vertebræ. The spinal canal was full of pus and the membranes of the cord were congested, thickened, and covered with floccules of pus and fibrin from the seventh dorsal vertebra to the cauda equina. The cord in the region of the dorsal vertebræ was highly congested and showed marked evidence of acute inflammation. The membranes of the cord at the upper part of the canal were congested, but no pus was found.

The bodies of the vertebræ were in line. The peritoneal cavity contained a slight amount of sero-purulent fluid and the intestines were distended with gas.

After a careful study of the case, the conclusion was reached that the disease must have been caused either by a partial dislocation of a vertebra, which reduced itself and was followed by infection; by the tearing away of the attachments of the muscles of the back from the vertebræ, followed by infection, abscess formation, and the subsequent involvement of the contents of the spinal canal; or that the infection existed prior to the sprain of the back and only needed some such lowering of the normal powers of resistance to allow it to become effective.

UNITED STATES NAVAL STATION, DRY TORTUGAS, FLORIDA.

(*Note.*)

H. W. JUDD, *Acting Assistant Surgeon, U. S. Navy.*

Methyl-alcohol poisoning.—A private marine, who had been for some time a habitual drinker, would, when intoxicated, drink bay rum and toilet waters. On January 9 he procured a quart of wood alcohol and drank of it at intervals until 6 o'clock a. m. of the 11th, when he was admitted to the sick list. He denied drinking the alcohol at first, but acknowledged it a short time before his death. He was much cyanosed when admitted, his pulse was weak, temperature subnormal, pupils greatly dilated, and total blindness existed. He sank rapidly, and died at 1.30 p. m., January 11.

CONCLUSION.

The clerical force of the Bureau has performed its duties with faithfulness and efficiency. The duty demanded has largely increased with the growth of the Navy, but there has been promptness in its discharge and the work of the Bureau has not fallen in arrears. The conduct of the work at the various medical suply depots has been satisfactory, and no delay in forwarding required supplies has occurred. Throughout the year the Medical Department has efficiently met every demand of the service, and it is gratifying to the Bureau to be able to represent at the close of the fiscal year that the record of the Medical Corps of the Navy during the year has been, as heretofore, one of thoroughness and efficiency.

In concluding this report the Bureau records with profound regret the loss to the Medical Corps, by death, during the year of three of its valued officers: Surg. S. H. Griffith, U. S. Navy, on April 23, 1905, at Washington, D. C.; Surg. H. N. T. Harris, U. S. Navy, on May 19, 1905, at the navy-yard, Pensacola, Fla., and Asst. Surg. Otto Kohlhase, U. S. Navy, on January 28, 1905, on board the U. S. S. *Boston*, at Panama, Panama. To the date of his untimely end each one of these officers was occupied in the active performance of his duty, well and faithfully done.

P. M. RIXEY,
Surgeon-General, United States Navy.

The SECRETARY OF THE NAVY.

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REPORT

OF THE

SURGEON-GENERAL U. S. NAVY,

(CHIEF OF THE BUREAU OF MEDICINE AND SURGERY,)

TO THE

SECRETARY OF THE NAVY.

1906.

WASHINGTON:
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Navy Department

REPORT

OF THE

SURGEON-GENERAL UNITED STATES NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1906.

SIR: In obedience to instructions contained in the Department's letter of August 8, 1906, I have the honor to submit a report of the operations of this Bureau for the fiscal year ending June 30, 1906, together with a set of annual estimates for the fiscal year 1908–9. The report shows the condition of the naval-hospital fund and contains information and recommendations concerning the Medical Corps, the Hospital Corps, the Hospital Corps Training School, the naval hospitals, hospital ships, surgical operations at naval hospitals, international medical service, naval training stations, recruiting, barrack buildings at receiving stations for recruits, naval stations at Midway, Hawaii, Guam, and Tutuila, and Olongapo, P. I., recommendations as to a sanitarium for tuberculous cases, dentists, and women nurses for the Navy; report on buildings completed and under construction and recommendations for new buildings; report on pensions and the Naval Medical School; surgical notes, and a statistical report of the health of the Navy and Marine Corps for the calendar year 1905.

Under instructions contained in the Department's orders of May 3, 1906, I left Washington, D. C., May 17 and sailed from San Francisco May 25 via Honolulu, Yokohama, Shanghai, and Hongkong, for Cavite, P. I., for the purpose of inspecting the hospital facilities and sanitary conditions prevailing at stations belonging to or under the control of the United States in the Orient. While in California I inspected the naval hospital and naval medical supply depot at Mare Island and the naval training station at San Francisco.

Recommendations based upon conclusions formed from observations of the naval stations at Mare Island and San Francisco and from inspections of the United States naval station, Hawaii, the United States naval hospital, Yokohama, Japan, the United States naval station, Cavite, P. I., the United States naval hospital, Canacao, P. I., and the United States naval station, Olongapo, P. I., are embodied elsewhere in the parts of this report which treat of these places.

While in Japan visits were made to the British naval hospital at Yokohama and to the Japanese charity and Red Cross hospitals and the naval medical school of the Imperial Japanese medical department at Tokyo. Inspection was made of the medical departments of the *Ohio*, *Galveston*, and *Chattanooga* at Kobe and of the *Cincinnati* and *Elcano* at Shanghai, and the medical equipment of these vessels, except in certain minor details, was found to be satisfactory.

At Manila the following institutions were visited: Bilibid prison, San Lazaro Hospital, civil hospital, government laboratories, St. Paul Hospital, and First Reserve Hospital, United States Army. The administration of Bilibid prison is most praiseworthy and the training of its 4,000 prisoners in industrial pursuits is evidently a work of great importance to the islands. The government laboratories, which comprize in one building departments of biology, chemistry, entomology, botany, etc., are admirable in their completeness and in the high character of the work done.

Sailing from Honkong, China, July 11, Genoa was reached August 11. En route to Southampton opportunity was taken to visit the Pasteur Institute and the Hôtel-Dieu in Paris. In England the naval medical school at Haslar was studied with special interest, in view of the fact that the old hospital of this school is in process of conversion into a modern fire-proof hospital along the lines proposed for the reconstruction of the United States naval hospital at Norfolk, Va. Leaving Southampton August 22, I arrived at New York August 28 and at Washington, D. C., the same day. It is hoped that the valuable information gained thru study of the methods of navies of foreign countries and of the hospital service and sanitary conditons of the United States naval stations beyond seas may result in many desirable changes and improvements in the medical establishment of the Navy.

ESTIMATES.

With the progressive increase in the personnel and the number of ships, the addition of new naval stations, and the enlargement of those already established the demands upon the medical department of the Navy will be correspondingly augmented. The estimates submitted for 1908 make provision for expenses equivalent to those of the present and include such increase over the estimates for the preceding year as is required to meet the growth of the service. The increase in the appropriations "Medical Department" and "Contingent," respectively, is necessary to provide for the expenses incident to the enlistment of 3,000 additional men, estimated for by the Bureau of Navigation. The increase under the appropriation "Repairs" is needed for the proper preservation of naval hospitals dependent upon this appropriation for repairs to hospital buildings and appendages, including roads, wharves, sidewalks, outhouses, fences, gardens, farms, and cemeteries. There will be 17 naval hospitals requiring provision for repairs during the fiscal year 1908. The inadequacy of various naval hospitals at important stations to accommodate the sick of the service at its present authorized strength, the necessity for remodeling and renovating antiquated and insanitary buildings, and the desirability of preparing for increased demands upon the medical establishment under war conditions compel the submission of estimates under public works for the construction, extension, and renewal of hospital buildings and appendages at the naval hospital, Norfolk, Va.; the naval hospital, Pensacola, Fla.; the naval hospital, Puget Sound, Washington; the naval hospital, naval training station, Great Lakes; the naval hospital, Washington, D. C.; the naval hospital, Canacao, P. I., and the naval medical supply depot, Cavite, P. I.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand July 1, 1905	$480,514.51
Transferred to credit since July 1, 1905	623,818.40
Total	1,104,332.91
Expended since July 1, 1905	372,176.79
Balance on hand June 30, 1906	732,156.12

MEDICAL OFFICERS, UNITED STATES NAVY.

January 1, 1906, the Medical Corps of the Navy consisted of 15 medical directors, 15 medical inspectors, 87 surgeons, 2 of which are additional in the grade; 50 passed assistant surgeons, 75 assistant surgeons, and 16 acting assistant surgeons appointed for temporary service under the act of Congress approved May 4, 1898. There were consequently 242 medical officers of the regular service and 16 with temporary appointments available for the care of nearly 43,000 officers and men of the Navy and Marine Corps and for all purposes of the Medical Department ashore and afloat. On account of the increasing number of ships in commission, the demands of hospitals and shore stations at home and abroad, and the requirements of the recruiting service the need for the employment of every medical officer has been continuous. The number of qualified candidates for commission as assistant surgeon has fallen far short of the demand. At the beginning of the calendar year there were 55 vacancies in the Medical Corps, 30 remaining from 1904, and 25 allowed by the act of Congress of 1903 as an annual increase for each year until 1908. During the fiscal year now ended there were no retirements for age, 2 resignations, 6 retirements for disability, 2 deaths, and 28 appointments as assistant surgeons. Candidates for appointment appeared for examination by the two medical boards, one at Washington, D. C., and the other at Mare Island, Cal., which were in constant session. Of the total of 53 applicants examined 13 were found physically and 10 professionally disqualified, and 26 physically and professionally qualified for appointment as assistant surgeons, and 4 withdrew. With the great increase in the scope of medical knowledge in recent years there has been a corresponding advance in the standard of medical education. The leading medical colleges have lengthened their curriculum from three to four years. It is considered desirable for applicants for appointment as assistant surgeon to pass at least a year in hospital after graduation. A candidate for admission to the Medical Corps must therefore have devoted from four to five years, at a personal cost of from five to six thousand dollars, to acquiring the necessary professional qualifications. Altho the best interests of the service demand a relatively high standard of professional requirements, the examinations for appointment are not of unusual difficulty and are similar in character to those for graduation in the best medical schools. It has been impossible, however, to obtain for the Navy a sufficient number of men with preliminary education who have had ability, time, and money to acquire the necessary medical training. This fact is strikingly shown by the number of vacancies in the Medical Corps. There were 44 vacancies at the end of the fiscal year.

Early in the spring of 1906 a medical officer was sent to the leading medical colleges of the East to make addresses for the purpose of giving information as to the nature and advantages of the medical service of the Navy and to attract candidates for the Medical Corps.

The Bureau regrets that the efforts thus made to fill the vacancies in the Medical Corps have not met with the desired success. It is evident that qualified young men of the medical profession do not regard the naval service with special favor as a life career. There are several conditions which tend to make the Navy less attractive to them than other branches of the public service. Some of these are the time spent at sea, inability to retire after thirty years' service, and slow promotion. Sea service is undoubtedly the principal factor which determines the preference of would-be applicants against the Medical Corps of the Navy. That the Navy exists for sea service is undeniable. The full truth of the fact is well appreciated, however, by medical students and weighs heavily with them to the disadvantage of the naval medical service. In 1903, when Congress past the law increasing the number of surgeons to 85 and giving all in the grade of surgeon the rank of lieutenant-commander, 34 entered the Navy as assistant surgeons. Since then, as the effect of the law upon promotion was found to be only temporary, the number decreased to 24 in 1904 and to 20 in 1905.

Promotion, except to the lower grade of passed assistant surgeon in the Medical Corps, is now practically at a standstill. There will be only 63 retirements for age, an average of 3 a year for twenty-two years, until 1928. The average age of the senior 6 surgeons is 53 years and their average length of service is twenty-nine years. The situation offers evidently little opportunity of promotion. There are two ways by which this stagnation may be relieved, first, by allowing voluntary retirement after thirty years' service, and, second, by increasing the upper grades of the Medical Corps. The former is granted by law to the Army and the Marine Corps and there is no just reason why it should be withheld from the Navy. Officers of the Medical Corps, after reaching the rank of lieutenant-commander, are not promoted with officers of the line of corresponding rank. For example, a surgeon whose date of precedence is June, 1873, will not be promoted to medical inspector until 1909, while his corresponding number in the line was promoted to commander in July, 1905. Surgeons thus lose seniority for from three to four years. This is cited to emphasize the fact that promotion in the Medical Corps, after the first promotion following commission, depends upon retirements and casualties in the upper grades, and that without increase in these grades, and voluntary retirement after thirty years' service, the present stagnation in promotion will continue. Of all the corps of the Navy the Medical Corps alone has been unable to secure a sufficient number of qualified men. The difficulty of obtaining qualified doctors for the service was experienced also by the British navy, and an attempt was made to overcome it by special legislation regarding the Medical Corps, one provision of which was voluntary retirement after stated periods of service.

The urgent necessity for relief from stagnation in promotion in the line of the United States Navy was met by the personnel bill of 1898, which provided for voluntary retirement in the grades of captain, commander, and lieutenant-commander in order to create an average number of vacancies above each of the grades of commander, lieutenant-commander, lieutenant, and lieutenant (junior grade), and for retirement by selection from the grades of captain, commander, lieutenant-commander, and lieutenant in case voluntary retirements and casualties should not be sufficient to cause the required average number of vacancies. This bill, however, made no provision for retirement in the Medical Corps prior to the age fixt by law of 62 years. An increase in the three lower grades of the Medical Corps was authorized by Congress in 1903, but no change was made in the grades of medical inspector and medical director. Increasing the number allowed in the lower grades will not relieve the situation without some provision to insure a reasonable flow of promotion to the upper grades of the corps.

While no increase in the total number of commissioned officers of the Medical Corps authorized by law is contemplated, the Bureau is convinced that a reapportionment of the numbers in the three upper grades now existing and the creation of a grade higher than medical director, to consist of three officers, is necessary.

The number of surgeons should be increased to 100, the number of medical inspectors to 25, and the number of medical directors to 20. There has been no increase in the grades of medical inspector and medical director since these grades were created, in 1870. The number in the grade of medical director was then fixt in proportion to the number of captains in the line. The actual strength of the Navy and Marine Corps has increased from 16,000 to nearly 43,000, but the number of medical inspectors and medical directors remains the same in 1906 as in 1885. When the Medical Corps reaches its authorized strength in 1908 the number allowed in these grades will be reduced to 4 per cent of the corps. For comparison, it is noted that the percentage of line officers in the grades of commander and captain now authorized by law is for the former 11 and for the latter 7.

The number of surgeons should be increased 15, making 100 surgeons in all, to provide a sufficient number to meet the constantly increasing demands for officers of this grade. January 31, 1906, there were 35 surgeons on seagoing ships and 8 on foreign stations that count as sea duty, making a total of 43. This left 44 surgeons for other than sea duty. Of these, 39 were at shore stations, 3 were on sick leave, 1 was returning from sea, and 1 was waiting orders. It thus appears that all the medical officers of the Navy in the grade of surgeon, with the exception of 5, were on duty either on ships or at shore stations requiring officers of that grade. There were 16 surgeons to be relieved from duty on seagoing ships and foreign stations, and at least 10 ships requiring surgeons to be put in commission, making a total of 26 required for sea duty in 1906. Of the 26 necessary to relieve those whose sea service was to expire and for ships to be commissioned during the year not one would have been on shore duty for two years. With the present number of surgeons the shore duty of officers in this grade is being gradually shortened, proper leave of absence after a full cruise at sea is not practicable, sea duty with its privations is increased, and, therefore, features which have always been prominent causes of the unpopularity of the naval medical service as a career for graduates in medicine are intensified. It can readily be seen that, even with the proposed increase of 5 surgeons each year for three years, the margin of those available for duty will be very small in view of emergencies, of the 5 per cent of ineffectives which must be allowed for illness, and of additions to the fleet and to the personnel. In this connection it may be remarked that there are 7 shore stations requiring surgeons, which are now filled by retired officers whose services will not be available in 1912.

As the Navy has enlarged, posts of duty calling for officers of rank and long experience in the service have increased. With the present number of medical inspectors it has not been practicable, making no allowance for illness, to assign officers of this grade to divisions of the fleet under flag officers and at the same time to fill the vacancies for them at appropriate shore stations at home and abroad. It has been necessary, in consequence, to designate surgeons for assignments that properly belong to medical inspectors. Additional medical directors are required to give a just proportion of officers in this grade, and to provide for proper assignments to important naval hospitals, to examining and retiring boards, and to special duty. The proposed increase in the three upper grades of the Medical Corps, together with voluntary retirement after thirty years' service, will, in a measure, relieve the present stagnation in promotion, and will not only make it possible to reach the grades of medical inspector and medical director at a reasonable date before retirement for age, but will serve to render the naval medical service more attractive as a career to the desired class of graduates in medicine.

ACTING ASSISTANT SURGEONS.

In February, 1906, in continuance of the policy of using the list of acting assistant surgeons as a source of supply for the regular service, and under the pressing need for medical officers, the Bureau decided, with the approval of the Department, to offer additional inducements to applicants for appointment as acting assistant surgeon and to aid those holding such appointments to obtain commissions as assistant surgeon. The plan adopted is as follows: Boards have been organized at the naval hospital, Chelsea, Mass., the naval hospital, New York, N. Y., the naval hospital, Philadelphia, Pa., the Naval Medical School, Washington, D. C., and the naval hospital, Mare Island, Cal., for the examination of applicants for the position of acting assistant surgeon. Candidates must be between the ages of 21 and 28 years. Successful candidates, after appointment as vacancies occur each year in the number of acting assistant surgeons allowed by law, will be ordered to temporary duty until October 1, and then sent to the Naval Medical School, Washington, D. C., for a course of instruction lasting six months. Upon the completion of this course, or prior thereto if prepared for examination, they will be examined, and if found qualified may receive permanent appointments as assistant surgeons; if found not qualified their appointments will be revoked. During the fiscal year, prior to the adoption of the foregoing plan, 2 acting assistant surgeons were found qualified by examination and commissioned as assistant surgeons, 6 were reappointed, 3 were not reappointed, 2 declined reappointment, and 2 resigned. Subsequent to its adoption 3 were appointed. Since the close of the fiscal year 5 have been appointed. October 1, 1906, there are 10 vacancies in the grade. It is earnestly hoped that a sufficient number of acting assistant surgeons may be speedily secured to fill all these vacancies and others to occur, as the whole number allowed by law are required to meet the demands of the service.

INCREASE IN THE WARRANT GRADE OF THE HOSPITAL CORPS.

A hospital corps of not less than a thousand men is now needed. To enlist and retain such a corps of the desired quality it is believed that greater inducements for continued service must be offered. Unless a good prospect of ultimate promotion with consequent increase in pay be held out as a reward for long and faithful service, the pecuniary advantages and comforts of civil life will continue to outweigh in the minds of ambitious hospital stewards contemplating reenlistment the attractions of the naval service, handicapped as it is with the privations and inconveniences of sea duty. The recommendation of the Bureau to increase the warrant grade of the Hospital Corps from 25, now allowed by law, to 50 was approved by the Department and included in the provisions of Senate bill No. 2206 of the Fifty-ninth Congress, first session. The bill, however, failed to receive consideration. The increase in the warrant grade of the Hospital Corps proposed by this bill would encourage the most desirable hospital stewards to reenlist, and the authorization of the grade of chief pharmacist would give pharmacists the opportunity, now enjoyed by boatswains, gunners, carpenters, and warrant machinists, of promotion to the lowest commissioned grade. The Bureau is of the opinion that a Hospital Corps as nearly permanent in organization as can be obtained is needed for the proper care of the sick and injured of the Navy, and that the proposed increase in the warrant grade will favor the accomplishment of this desirable end, and therefore again recommends that the number of pharmacists be increased to 50; that the grade of chief pharmacist be authorized, and that all laws now existent or hereafter to be enacted relating to warrant officers of the Navy be made applicable to them.

BOOK OF INSTRUCTION FOR THE MEDICAL CORPS.

The publication and issue to the service in May last of the book of Instructions for Medical Officers of the United States Navy is regarded as a noteworthy event. The need for such a book of instructions has been fully appreciated for many years, the last previous edition of such a book being dated 1886.

The duties of medical officers, particularly of those inexperienced in service matters, can not fail to be more efficiently performed under the guidance of these instructions, based upon methods approved by the Department. In prescribing more exact and detailed information in matters relating to sanitary inspections and reports, physical examinations in recruiting for the service, records forming the basis of settlement of claims for pensions, requisitions for supplies, hospital administration, etc., this book will prove of great practical value to the service, and it is a source of satisfaction to the Bureau to realize that its efforts to secure the publication of this important manual have been successful and that the book is in the hands of every medical officer. The uniformity of procedure in the discharge of medical duties therein prescribed will secure more accurate records, more intelligent apprehension of service requirements, and more satisfactory results in the performance of the special duties devolving upon the Medical Department in its supervision of the sanitary interests of the service.

JOINT BOARD OF MEDICAL OFFICERS OF THE ARMY AND NAVY OF THE UNITED STATES.

By direction of the President a joint board of medical officers of the Army and Navy was convened at Washington, D. C., in January, 1906, to consider improvement in first-aid dressings and uniformity of equipment for the medical departments of the two services. The members of this board were, for the Navy, Medical Director J. C. Wise, Surg. C. F. Stokes, Surg. W. C. Braisted, and Surg. J. D. Gatewood, who, on February 12, relieved Surg. C. F. Stokes as member; and for the Army, Capt. Charles Lynch, General Staff, U. S. Army, and Capt. Carl R. Darnell, Asst. Surg., U. S. Army.

The subjects considered by the board included: First-aid packets, shell-wound dressings, transportation of the wounded, equipment of the Hospital Corps, (a) orderly pouch, (b) Hospital Corps pouch, general equipment, medicines, diagnosis tags, brassards, and hospital ships.

A report dated February 19, 1906, to the Secretary of War, embodied the conclusions and recommendations of the board, which, if directed to be put in practical operation, will prove beneficial in the administration of the medical departments of both services and materially improve their equipment for war conditions. Interchangeability of articles of equipment in the medical departments of the Army and Navy, contemplated in the order authorizing the board, will be particularly useful and valuable in the event of joint military operations.

The recommendations of the joint board were approved by the Surgeon-General of the Army and by the Secretary of War and published in general orders for the information and guidance of the Army.

The recommendations of the joint board were approved also by this Bureau, but not having received approval as yet in their entirety by the Department, have not been published to the Navy.

MEDICAL ASSOCIATIONS.

The Medical Department of the Navy was represented at meetings of medical associations as follows:

American Public Health Association, Boston, Mass., September 25–29, 1905, by Medical Directors D. Dickinson and H. Wells, U. S. Navy; International Congress on Tuberculosis, Paris, France, October 2–7, 1905, by Medical Inspector H. G. Beyer, U. S. Navy; Second General International Sanitary Convention of the American Republics, Washington, D. C., October 9–14, 1905, by J. D. Gatewood, surgeon, U. S. Navy; American Society of Sanitary and Moral Prophylaxis, New York, February 8, 1906, by G. E. H. Harmon, medical director, U. S. Navy; Fifteenth International Congress of Medicine, Lisbon, Portugal, April 19–25, 1906, by J. C. Wise, medical director, U. S. Navy; sixth annual meeting of the American Association of Pathologists and Bacteriologists, Baltimore, Md., May 18–19, 1906, by A. W. Balch, passed assistant surgeon, U. S. Navy; American Medical Association, Boston, Mass., June 4–8, 1906, by P. A. Lovering, medical inspector, U. S. Navy, and W. B. Grove, surgeon, U. S. Navy.

The Bureau notes with satisfaction that at the last session of the American Medical Association, held in Boston, June 5 to 8, 1906, the house of delegates adopted an amendment to the constitution by which naval medical officers become ex officio members of the association and entitled to all the rights and privileges of such membership, except that they do not receive the Journal of the American Medical Association unless they personally subscribe for it. An amendment also provides that the appointments of delegates from the United States Navy shall be for one year.

MEDICAL AID TO SAN FRANCISCO, CAL.

Medical officers and members of the Hospital Corps of the Navy attached to the naval training station, San Francisco, the naval station, Mare Island, and the ships of the Pacific Squadron, rendered efficient aid in caring for the sick and injured sufferers from the earthquake and conflagration, which, in April last, devastated the city of San Francisco. Surgical and medical supplies from the United States naval medical supply depot, Mare Island, the training station, San Francisco, and the naval vessels were used to meet the urgent necessities of the unfortunates. Grave cases in both sexes were admitted to the naval hospital, Mare Island, and to the sick quarters of the training station, San Francisco—about 38 to the former and 25 to the latter—and cared for as patients until their discharge was practicable.

INTERNATIONAL MEDICAL SERVICE.

When the Chinese officials designated by the Empress of China to study foreign methods in Europe and America were about to leave Peking, September 24, 1905, a bomb was exploded in the dining car at the railway station. Foreign medical aid was immediately summoned. Among those who responded was the surgeon of the American guard, who promptly arrived with ambulance, stretcher, stretcher bearers, and dressings. One commisioner and two children were sent to the French civil hospital, and the remaining five cases were taken to the hospital of the American legation guard, where medical and surgical treatment was given them. Three died and two recovered.

Twenty-eight of the crew of H. I. R. M. steamer *Lena* were received and treated at the naval hospital, Mare Island, Cal. One was returned to duty and all the others were sent back to Russia on the recommendation of a board of medical survey.

Fifty-eight patients were transferred to the Canacao Hospital, Cavite, P. I., from the Russian cruisers *Aurora*, *Oleg*, and *Jemchug*, June, 1905, about eight days after the battle of the Korean Straits. With the exception of one affected with scorbutus all were suffering from lacerated and septic wounds caused by fragments of shell or splinters of metal or wood, which were complicated in some cases by fracture or splintering of bone.

Among the lesions were the following: A compound comminuted fracture at junction of upper and middle thirds of left femur, with an infected sinus passing from outer surface downward and inward through limb; a large infected wound, inner surface right thigh just above knee, with extensive loss of tissue and sloughing involving femoral artery; compound comminuted fracture of postero-superior part of left parietal bone, with protrusion of brain tissue from infected wound; a small infected wound above left orbit, with contusion of left eye, rupture of iris, and irregularity of pupil; an infected sinus on inner side of left knee, thru which a fragment of shell an inch square was removed from behind patella; a wound on inner side of thigh above left knee, a wound on forehead, and a small wound on left wrist, all infected; an infected sinus from left groin to perineum and perforation of left tympanum, with purulent discharge and deafness; compound fracture of second metacarpal bone, left hand, and laceration of left external ear; fracture of left radius near middle, two wounds in left elbow, and a small sinus in left groin; compound fracture of leg at middle, lower fragment overriding, and ends of bone dead, with pus oozing from medulla, small wound of scalp, numerous small, infected, punched-out ulcers about shoulders, thighs, and feet, and some abrasions of hands and arms; two indurated sinuses of left arm just above elbow; a small piece of shell had penetrated outer coat of basilic vein and lodged; the vessel wall had weakened and an aneurismal dilation had formed; right foot gangrenous; leg amputated at lower third and subsequently disarticulated at knee; a large sloughing wound inner side of right foot; necrosis of first metatarsal bone; infected tissues in left axillary region, left arm, right knee, and scalp; numerous scattered wounds, all infected; patient had about thirty five wounds and was the only survivor of a gun's crew; compound comminuted fracture of neck of right femur; a large, infected, lacerated wound on each side of left leg, muscles torn away and sloughing, shell fragments had left bones, vessels, and nerves intact. The effects of delay in instituting proper treatment, owing to the absence of a hospital ship for the reception and care of the wounded immediately after the battle and the time necessary to reach a base hospital were well shown in these cases.

The disposition of the patients may be summarized as follows: Discharged to duty, 19; discharged to hospital ship *Kastroma*, 34; sent home on parole, 1; remaining in hospital, 2; died, 2; total, 58.

January 4, 1906, Passed Assistant Surgeon Payne, of the *Nashville*, and Assistant Surgeon Heiner, of the *Scorpion*, landed at Puerto Plata, Santo Domingo, with a hospital steward, hospital apprentice, and three sailors carrying the Red Cross flag and medical and surgical supplies to render aid to the revolutionists injured in the fighting near the town during the first three days of January.

Thru the kindness of the Cuban consul a clean unfurnished house in a good part of the town was secured for a hospital. Great assistance was given by Mr. Muir, an English clergyman, and his wife, in securing bedding, tables, and other necessaries.

Six men with gunshot wounds were treated, including two cases of compound fracture of the thigh, one perforating wound upper part right side of chest, one perforating wound right scapula and lung, one perforating wound left gluteal region with exit in left groin, and one perforating wound of left side of neck, with bullet imbedded in right side of neck under skin.

Several men with suppurating bullet wounds of the soft parts came to have their wounds drest.

The services of the medical officers were appreciated by the wounded and the townspeople, and tended to create a friendly feeling toward Americans.

UNITED STATES NAVAL MEDICAL SCHOOL.

The scheme inaugurated at the Naval Medical School in 1904 of providing a second or summer session at the conclusion of the winter term was continued during 1905. The regular term began October 1, 1905, and 21 assistant surgeons composed the fourth class. All finished the course satisfactorily and past the required examinations. At the closing exercises held March 31, 1906, certificates of graduation were presented to the members of the class by the honorable Secretary of the Navy. Three obtained over 90 per cent of the general average of marks and graduated with honor in the following order of precedence, E. H. H. Old, M. E. Lando, and F. M. Shook.

As in previous years, much valuable and appreciated assistance in the work of instruction was given the faculty by distinguished specialists.

The summer term began April 15 and concluded June 15, 1906. The class in attendance comprized 3 surgeons, 3 passed assistant surgeons, and 6 assistant surgeons. A review of the work of the school by the medical director in command appears elsewhere in this report.

The laboratories of the Naval Medical School, besides the work of instruction in the school, have served a most useful purpose in making important clinical and sanitary investigations.

UNITED STATES NAVAL HOSPITAL CORPS.

The Naval Hospital Corps, since its organization in 1898, has proved a great advance toward providing for the Navy a body of trained nurses and hospital stewards. A constant effort has been made to secure for the corps and retain in the service men of sobriety, intelligence, aptitude, and fair education. It is discouraging to note, however, that a large number of the corps do not reenlist and the Navy thus loses the services of many desirable men who have had four years' training and experience. New enlistments have not been sufficient to fill the vacancies thus created in the corps. While the demands of the service for men of the Hospital Corps have increased, their number has decreased. In January, 1905, there were 246 hospital stewards, 255 hospital apprentices first class, and 271 hospital apprentices, a total of 772. In June, 1906, there were 213 hospital stewards, 260 hospital apprentices first class, and 233 hospital apprentices, a total of 706. This number is too small to provide the medical departments of ships in commission with full complements and at the same time to supply the needs of naval hospitals, dispensaries, navy-yards, naval training stations, marine detachments, and recruiting offices. As present conditions do not attract men of the corps to reenlist, and as the supply of recruits is not sufficient, it is therefore evident that without offering additional inducements in pay and in prospect of promotion it will be impossible to obtain for the corps the requisite number of recruits and retain in it experienced and trained men.

The monthly pay now allowed for hospital stewards is $60; for hospital apprentices first class, $30; and for hospital apprentices, $20. The pay of the Hospital Corps was fixt by the act of Congress which authorized the corps. Hospital stewards are thus deprived of the benefits of the Executive order of June 26, 1903, increasing the pay of all other chief petty officers of the Navy who qualify by examination for permanent appointment to $70 a month. For the same reason hospital stewards, hospital apprentices first class, and hospital apprentices do not receive 75 cents a month in addition to the pay of their rating, which is given to all other enlisted men of the Navy, except mates, for each good-conduct medal, pin, and bar. Furthermore, as the number of pharmacists is limited to 25, the chances of promotion to warrant grade are very small. These disadvantages are naturally sources of dissatisfaction to the members of the Hospital Corps. Actual experience during the past eight years and careful study of the present and future needs of the service have convinced the Bureau that correction of these unsatisfactory provisions of the law and reorganization of the Hospital Corps are imperatively necessary to secure and maintain a competent and efficient body of men for the care and treatment of the sick of the Navy. The necessity for reorganizing and increasing the efficiency of the Hospital Corps has been fully set forth by the Bureau in three preceding annual reports. The Department has approved the recommendations of the Bureau concerning the corps and has urgently recommended favorable action thereon by Congress. The stationary or diminishing number of the Hospital Corps in relation to the actual and increasing strength of the Navy emphasizes the fact that such reorganization is becoming daily more imperative, and the Bureau again earnestly recommends that request be made for prompt consideration by Congress of this matter, which is of vital importance to the medical establishment of the Navy.

An organization which will meet present needs, permit ready expansion in the event of war, and secure an efficient naval hospital corps is, in the opinion of the Bureau, provided for in Senate bill No. 2206, Fifty-ninth Congress, first session, which contains the following provisions: First, that the Hospital Corps of the Navy shall consist of chief pharmacists, pharmacists, chief pharmacists' mates, pharmacists' mates, first class; pharmacists' mates, second class, and hospital apprentices. Second, that the number of chief pharmacists and pharmacists on the active list shall not exceed 50 in all, the pharmacists to be appointed by the President and have the status of warrant officers, with the rank, pay, allowances, and privileges of such; that vacancies in the grade of pharmacist shall be filled from men holding the rating of chief pharmacists' mate, subject to such examination as the Secretary of the Navy may prescribe; that pharmacists shall, after six years from date of warrant, be commissioned chief pharmacist, to rank with but after ensign, and shall on promotion have the same pay and allowances as are now allowed chief boatswains, chief gunners, chief carpenters, and chief sailmakers, provided that no pharmacist shall be so promoted until he shall have past an examination as to his mental, moral, professional, and physical qualifications before a board of officers, in accordance with regulations prescribed by the Secretary of the Navy. Third, that the Secretary of the Navy is hereby empowered to enlist or cause to be enlisted as many chief pharmacists' mates, pharmacists' mates, first class, pharmacists' mates, second class, and hospital apprentices as in his judgment may be necessary, and to fix the number and to make such regulations as may be required for their enlistment and government. Enlisted men of the Navy and Marine Corps shall be eligible for transfer to the Hospital Corps. Fourth, that all necessary hospital and ambulance service at naval hospitals, naval stations, navy-yards, and marine barracks, and on vessels of the Navy and Fish Commission, shall be performed by members of the Hospital Corps, and the said corps shall be permanently attached to the Medical Corps of the Navy and shall be included in the effective strength of the Navy, and shall be counted part of the enlisted force provided by law and be subject to the laws and regulations for the government of the Navy. Fifth, that the pay of chief pharmacists' mates shall be $70 per month, except when serving under acting appointments, when it shall be $60 per month; of pharmacists' mates, first class, $50 per month; of pharmacists' mates, second class, $35 per month; and of hospital apprentices, $20 per month, with such increase on account of length of service as is now or may hereafter be allowed by or in pursuance of law to other enlisted men of the Navy; and that all benefits that are now or may hereafter be given by or in pursuance of law to other warrant officers or enlisted men of the Navy shall hereafter be allowed to warrant officers and enlisted men of the Hospital Corps.

HOSPITAL CORPS TRAINING SCHOOL.

The term of instruction in the Hospital Corps Training School at the naval hospital, Norfolk, Va., has been extended to four months. The eleventh class completed the prescribed course in August last. The interval between the sessions has been shortened in order to give the advantages of the school to as large a number of men as possible. The Bureau realizes that four months are too short a period for the accomplishment of satisfactory training, but in view of the service demands it has not yet been practical to lengthen the term. For the same reason and because of the limited accommodations at the Norfolk hospital it has been necessary to restrict the number in the classes to about forty men. When the exigencies of the service make it practicable to hold men in reserve for a sufficient length of time a more comprehensive scheme of training will be established. The desire of the Bureau to organize at the Mare Island hospital a training school similar to that at the Norfolk hospital could not be realized because of the demands of the service on the Pacific and Asiatic stations for men of the Hospital Corps. The wisdom of establishing the training school at the Norfolk hospital has been fully shown by the marked improvement of the personnel of the Hospital Corps in professional efficiency. The Bureau hopes to continue the systematic training of the Hospital Corps by inaugurating a course of instruction to follow service at sea. About 40 per cent of the total force of the Hospital Corps have received the benefits of the present training school at the naval hospital, Norfolk, Va.

A NURSE CORPS OF TRAINED WOMEN NURSES.

The Bureau is very desirous of obtaining for duty at naval hospitals and on hospital and ambulance ships a nurse corps of trained women nurses. The special aptitude of women for the care of the sick is acknowledged the world over and their peculiar fitness for work in wards and operating rooms has been demonstrated in every hospital. The necessity for their employment in the Army has been satisfactorily established by the experience of the Medical Department of the Army with the Army Nurse Corps (female). The report of the Surgeon-General of the Army for 1905 states that the conduct of these nurses has been unexceptionable and their work deserves the warmest praise. In modern wars the services of women nurses have proved invaluable for the care of the sick and wounded. In time of peace such nurses would secure for the sick at naval hospitals a better medical and surgical nursing service than is now obtainable and be of great use in teaching and training the men of the Hospital Corps. In time of war they would be needed, in addition, for hospital ships and their presence in hospitals would release a large number of Hospital Corps men for duty on men-of-war. The recommendations of the Bureau for the establishment of a corps of trained nurses in the Navy has met with the approval of the Department. Senate bill No. 2207 of the Fifty-ninth Congress, first session, provided for the organization of such a corps, which could be readily expanded to meet extraordinary needs, but this bill unfortunately failed to receive the necessary legislation. The Bureau renews its recommendation that legislation authorizing the employment of trained women nurses for the Navy be requested of Congress.

DENTAL SURGEONS IN THE NAVY.

In all military organizations the great importance of the condition of the teeth for the proper mastication of food and the prevention of digestive and intestinal diseases has been so thoroly demonstrated by experience that defective teeth alone are a sufficient cause for the rejection of applicants for enlistment. In the Army and Navy of the United States experience has also shown that even greater care than has hitherto been exercised is necessary in the selection of recruits as far as concerns the condition of the teeth. The preservation of the teeth after enlistment is also imperative. In the Army of the United States 30 contract dental surgeons are allowed by the act of Congress approved February 2, 1901. The reports of the Surgeon-General of the Army show that for a mean strength of 67,643 troops on duty during the year 1903, a total of 42,794 dental diseases and injuries were treated and a total of 47,616 dental operations were performed; also that in 1904, for ratios per thousand of mean strength, 682.63 cases were admitted to treatment and 654.61 operations were performed for dental and oral diseases. These statistics indicate the relative prevalence of dental caries and other dental and oral diseases among the enlisted men of the Navy and Marine Corps, and give for comparison a proportion of 27,182 dental diseases and injuries requiring treatment during the year 1906 in an enlisted force of nearly 42,800 men and marines. The situation shows the strange paradox of provision by a Government for the care of the teeth of the men of its Army without any similar provision for the preservation of the teeth of the men of its Navy and Marine Corps. Enlisted men of the Navy and Marine Corps are obliged to pay out of their own pockets for dental work which is given by the Government to soldiers of the Army. It would seem to be self-evident that dentists are as necessary for the Navy and Marine Corps as they are for the Army. Recommendations for the employment of dentists under the control of the Bureau of Medicine and Surgery to serve in the Navy, have been approved by the Department, and repeatedly submitted, without securing, however, the enaction of favorable legislation. Senate bill No. 2208 of the Fifty-ninth Congress, first session, which embodied the Department's views on the subject, failed of consideration, On account of the need for the services of dentists in the Navy the Bureau has continued the temporary expedient of employing for the purpose at certain receiving ships and training stations, at Guam and at Cavite, hospital stewards possessing knowledge of dentistry. The work done by these men has been creditable and highly useful. Unforseen difficulties have arisen in connection with some of those detailed for dental work, the authorized pay of hospital stewards is not sufficient to secure and retain competent dentists, and the Bureau does not consider the continuance of the expedient desirable. It is hoped, therefore, that steps may speedily be taken to provide for the Navy what has long been granted to the Army—a corps of dental surgeons.

THE UNITED STATES NAVAL TRAINING STATION, NEWPORT, R. I.

Altho the Training Station, Newport, R. I., was improved by the completion of a new barracks in June, 1905, the conditions there are far from satisfactory. The disinfection building for the reception, bathing, and physical examination of recruits and the disinfection of their clothing was adequate for the needs of the station when the average number of recruits was from 12 to 15 daily, but it is now insufficient when from 50 to 100 are sometimes received in a day and nearly 3,500 are passed thru it in a year. The bathing facilities of this building comprise but three bath tubs with shower over each; the floor of the bathroom is of wood and is constantly soaked with water. The location of the fumigating and sterilizing room in the opposite side of the building from the bathroom necessitates carrying possibly infected clothing through the room in which clean clothing is kept. As the partitions on the lower floor do not run up to the ceiling it is impossible to fumigate the rooms separately.

Barracks A, used as quarters for recruits under observation after passing thru the routine of the disinfection building, was destroyed by fire the night of January 8, 1906. Since then tents have been used for the purpose.

These details speak for themselves and illustrate the deficiencies of the Newport Training Station, the first in point of equipment, facilities essential for the reception and detention of recruits and for the prevention and control of infectious diseases.

A board of medical officers convened December 26, 1905, to investigate the outbreak of cerebro-spinal meningitis at the Newport Training Station was of the unanimous opinion that the segregation of new recruits in small units is absolutely necessary for the safety of the main body of apprentice seamen and the continued usefulness of the station, and that the only practicable and safe method of securing this and of preventing and controlling epidemics is the provision of a sufficient number of pavilion barracks, of twelve beds each, for purposes of detention. At present boys who have undergone the required period of detention of twenty-one days, and are about to be discharged, come in contact with boys who have just arrived, and from them may carry infection to the main body of apprentice seamen, and thus cause outbreaks of disease necessitating the closing of the station.

The method recommended by the board of segregating recruits in small units until their freedom from communicable disease is established meets the full approval of the Bureau, as experience has shown that without the operation of such a system epidemics causing loss of life and great damage and embarrassment to the service will inevitably ensue.

An appropriation was made by the Fifty-ninth Congress, first session, for the construction of detention barracks at the Newport Training Station, and their completion will greatly facilitate the segregation recruits and the prevention of epidemics of infectious disease.

THE UNITED STATES NAVAL TRAINING STATION, NORFOLK, VA.

The Naval Training Station at Norfolk, Va., is still more open to criticism in these respects. The old wooden vessels *Franklin* and *Richmond* and the temporary barracks at the St. Helena Reservation are used for housing recruits and men awaiting assignment to vessels. There are no proper facilities for the detention and segregation of recruits, and there are no adequate arrangements for controlling infection. On the berth deck of the *Franklin* a small room, 11 by 12 feet, is used for the detention of patients suspected of having infectious disease. This has served a most useful purpose, but it has not sufficed to protect the ships and station from epidemics of diphtheria, mumps, measles, scabies, and cerebro-spinal meningitis. Under present conditions it is impossible to prevent such epidemics, and it can hardly be expected that infection will not be conveyed by men transferred in numbers to cruising ships. The resort to tents, which has been made imperative in the past by the prevalence of certain diseases, is not to be commended for the winter months.

In the last quarter of 1905 the daily average complement of men, exclusive of 243 belonging to the Reserve Torpedo Flotilla, was 1,963. During the year 8,316 recruits and apprentice seamen were received. When the epidemic of cerebro-spinal meningitis caused the closing of the Newport Training Station apprentice seamen recruits were diverted to Norfolk, and much increased the usual complement at the St. Helena Station. The inadequate provisions for the reception of so large a body of men, and the disproportion of the accommodations to the number to be cared for, were well shown in the messing arrangements. At one time all the tables in the mess hall, for feeding more than 1,000 men, and those on the *Richmond*, for nearly 800, were set twice and often thrice at each meal. The effects of overcrowding were soon made apparent by the occurrence of cases of cerebro spinal meningitis and by an epidemic of pneumonia.

The three buildings built in haste, and with little regard to sanitary requirements, under pressing need for addititional accommodations at the St. Helena Reservation, are hygienically defective in construction and insufficient in size.

THE UNITED STATES NAVAL TRAINING STATION, SAN FRANCISCO, CAL.

The health of the station during the year 1905 was exceptionally good. This fortunate circumstance may fairly be attributed to the correction of some of the original faults in the construction, lighting, and ventilation of the barracks and to the absence of overcrowding.

The frequent appearance in the past of contagious diseases at this station necessitated the construction of a building 60 feet in length and 24 feet in breadth, for use as an isolation hospital. This building has served a good purpose, and the small steam sterilizer, subsequently supplied, has proved useful for disinfecting the effects of a few patients at a time. On one occasion, however, previous to the year 1905, it was necessary for the eradication of infectious diseases to abandon the barracks and ship temporarily, and to place the men in tents for a month. During this time all the hammocks and bedding were disinfected in the large sterilizers at the quarantine station, Angel Island, and the ship and barracks were thoroly disinfected and painted. The camping out so improved the physical condition of the men and the subsequent health of the station as to suggest the desirability of placing the men in camp for several weeks every summer while the ship and barracks are receiving a thoro overhauling.

The sick quarters of the station are insufficient in capacity and defective in arrangement, construction, and location. The separation of the wards and buildings used by the medical department make proper administration impracticable. One of the two small buildings for the care of the sick contains 12 beds, was originally built as a commissary storeroom, and adjoins the kitchen of the barracks. An operating room, added in 1904, is the only part of the structure suitable for hospital purposes. The other building, near the first, has 2 wards with 8 beds each, and is in close proximity to the stable. Even if the dangers of transmission of disease thru the agency of flies, which, as is well known, are incident to stables and attracted by kitchens, is not considered, the situation of both the buildings used as sick quarters is very undesirable. The island occupied by the training station is unusually exposed, and the climatic conditions tend to produce diseases of the respiratory system. With a complement of from 700 to 900, the enlisted men of which are for the most part young adults, who, by reason of their age, are peculiarly susceptible to various infectious diseases, such as measles, mumps, scarlet fever, and diphtheria, it will be seen that the present provision of beds is inadequate. The station urgently needs new sick quarters, well constructed and situated in the best obtainable location.

INFECTIOUS DISEASES AT THE UNITED STATES NAVAL TRAINING STATIONS.

The epidemic of cerebro-spinal meningitis at the Newport Training Station was of special interest. Those affected with the disease were all fresh recruits. Three of the first cases had been at the station less than three weeks. The last cases were in boys brought from the training station at Norfolk, where cerebro-spinal meningitis had recently occurred. There were sixteen cases in all.

Infection was at first supposed to have come from barracks A, building No. 2, in which there had been a case of the disease on June 22. It was afterwards thought the infection was imported by the recruits in whom it first developed. The latter supposition is, without doubt, correct, as the disease was prevalent in many places from which recruits were received. The last cases were in all probability infected at the Norfolk Training Station.

As soon as the disease declared itself the transfer of recruits to the station was stopt. While the epidemic lasted, recruits, apprentice seamen discharged from hospital, and all stragglers and deserters returned to the station were sent to the disinfection building for disinfection and a period of observation of twenty-one days.

The disease began in barracks A, for the segregation of newcomers, on December 4. December 5 this building was cleared out and all apprentice-seamen recruits, except those in the disinfection building, were sent to the *Reina Mercedes*. A case occurred on the *Reina Mercedes* December 7, 10, and 12. December 13, 170 of the apprentice seamen from the ship were put in tents for sleeping. A case occurred on December 18, 19, and 20, and two cases on December 27, on the *Reina Mercedes*. December 29 the 170 apprentice seamen in camp were examined and 158 transferred to barracks C; those remaining on the *Reina Mercedes* were put in tents for sleeping. December 30 a case occurred in barracks C among the boys sent there from the tents December 29. January 6 and 17 a case occurred in barracks C.

February 19, 1906, boys were received from the training station, Norfolk, where there had been recent cases of cerebro-spinal meningitis. They had been under observation for three weeks, were considered free from infection, and put in barracks B, in which the disease had not appeared. On March 2, 12, 20, and 26, a case occurred among these boys. None of the boys who had been in barracks B before the draft from Norfolk arrived had the disease

All the cases were sent for treatment to the naval hospital, Newport; 13 died and 3 recovered.

On account of the prevalence of the disease at the Newport Training Station, recruits were diverted to the training station at Norfolk. The latter was soon overcrowded, and in the first four months of 1906 8 cases of cerebro-spinal meningitis developed there. After transfer to the naval hospital, Norfolk, Va., 6 died and 2 made fairly good recoveries.

One case of cerebro-spinal meningitis occurred at the naval training station, San Francisco, Cal., was treated there, and recovered.

The occurrence during the fiscal year at the three naval training stations of infectious diseases necessitating quarantine and disinfection is shown in the following tables:

Naval Training Station, Newport, R. I.—Catarrhus epidemicus, 15; febris enterica, 12; pneumonia, 47; measles, 125; mumps, 127; scarlet fever, 1; cerebro-spinal meningitis, 17.

Naval Training Station, Norfolk, Va.—Catarrhus epidemicus, 50; febris enterica, 25; pneumonia, 43; measles, 47; mumps, 181; variola, 2; varicella, 3; cerebro-spinal meningitis, 7.

Naval Training Station, San Francisco, Cal.—Catarrhus epidemicus, 58; pneumonia, 9; measles, 27; mumps, 2; cerebro-spinal meningitis, 1.

The foregoing statements serve to bring out clearly the well-known fact that epidemics of infectious diseases are prone to prevail whereever recruits are brought together in numbers without ample provision for preliminary detention and observation, subsequent quarantine, and proper housing to prevent the bad effects of overcrowding. The naval training stations are very defective in these respects and, unfortunately, the other stations at which recruits are assembled for training before assignment to sea are still open to the criticisms of previous reports.

RECRUITING.

The physical examination of recruits for the service by medical officers is properly regarded of the greatest importance, as upon it depended the efficiency of the personnel and the protection of the Government from additions to the pension list. For several years the shortage of officers in the Medical Corps has often made it necessary to employ, for recruiting, acting assistant surgeons who, while performing this duty in the main satisfactorily, were lacking in experience in service conditions. Moreover, recruiting by traveling parties, together with a desire to secure the maximum number of men to fill existing vacancies in a limited time, have doubtless favored undue haste in physical examinations and, in some instances, the situation of the recruiting office in a noisy locality, or the unsuitable character of the room used for physical examinations, has imposed conditions under which uniformly good results were unobtainable even with the exercise of the greatest care. Naval medical officers have not been available for duty at the numerous offices which have been established to obtain recruits for the Marine Corps. In consequence, physical examinations for this branch of the service have been largely conducted by civilian physicians employed by the Brigadier-General, Commandant, for the purpose.

Owing to these circumstances an undue number of recruits with physicial defects have been accepted and when tried under service conditions have become the subjects of medical survey. A review of the surveys held on recruits shows that 292 enlisted men of the Navy and 121 of the Marine Corps, 413 men in all out of the total admitted to the service in 1905, were surveyed for various disabilities which existed prior to enlistment and were discovered within the first six months afterwards. In some cases these disqualifications were undoubtedly overlooked by the examining surgeon, but in others they were of such a character as to evade discovery at the time of enlistment. The disabilities which called for medical survey may be classified as follows: Heart affections, 75; nervous affections (insanity, neurasthenia. defective speech, and chorea), 63; eye affections (defective vision and color blindness), 82; deformities (affections of bones and joints, flat feet), 49; genito-urinary affections (nephritis, retained testicles, and enuresis), 31; ear affections (deafness), 17; hernia, 23; poor physique, 16; pulmonary tuberculosis, 16; varicose veins (variocele and hemorrhoids), 8; rheumatic affections, 11; defective teeth, 5; goitre, 4; drug habit, 4; miscellaneous affections, 9; total, 413. With the exception of some of the cases of insanity which were transferred to the Government Hospital for the Insane, Washington, D. C., and a few of the tubercular cases which were sent either to the United States Naval Hospital, Pensacola, Fla., or to the United States Army General Hospital, Fort Bayard, N. Mex., all the other cases of disability were recommended for discharge from the service.

BARRACK BUILDINGS AT RECEIVING STATIONS FOR RECRUITS.

The provisions for housing the enlisted force of the Navy during its period of detention ashore have not improved and advanced in correspondence with its gradual increase. The old wooden vessels used as receiving ships have all the sanitary disadvantages incident to long habitation, to structural defects, and decay of old age. These ships, as well as others of more modern type at times employed for the purpose, are restricted in capacity, and have frequently illustrated the dangers of overcrowding. The temporary barracks erected at the St. Helena Reservation and at the League Island Navy-Yard as expedients to provide for the overflow from the receiving ships are only halting steps in the right direction. The inadequacy of these vessels and barracks for the requirements of the present naval establishment is evident in time of peace, but would be apparent to a dangerous and embarrassing degree in time of war. It is believed that the correct solution of the problem lies in the repeated recommendations of the Bureau, in which the Bureau of Navigation has concurred, that barrack buildings suitable in type and embodying the best ideas of sanitary science should be constructed at selected localities. For every barrack building the maximum number of occupants should be fixt, and should not be exceeded. At each receiving station and at the stations of the Marine Corps separate and completely equipped detention buildings with capacity to accommodate all recruits received during a period of twenty-one days should be built. In these detention buildings or sanitary barracks all new recruits, after disinfection and examination, should be segregated during the period of incubation of infectious diseases in order to protect those longer in the service, to prevent epidemics, and to minimize the danger of the conveyance of infection by drafts of men to vessels of the fleet.

THE MARINES AT PANAMA.

In May the camp at Empire was evacuated and the marine detachment was moved to Bas Obispo, 15 miles from Panama on the line of the Panama Railroad, and lodged in buildings formerly belonging to the French Canal Company, which had been occupied by three companies of marines in 1904. The change was made suddenly and involved much hard labor, but was followed by no serious consequences. The conditions in and about the camp are practically the same as those that prevailed at Empire. The medical officers have continued to work diligently to secure the sanitary conditions necessary to preserve the health of the command. Their efforts have met with gratifying success, when the fact is considered that conditions outside the camp are beyond their control.

MALARIA AMONG THE MARINES OF A DETACHMENT SENT TO THE ISTHMIAN CANAL ZONE IN THE U. S. S. COLUMBIA.

A battalion of four companies of marines of a hundred men each left Philadelphia, Pa., in the U. S. S. *Columbia*, May 20, 1906, and on May 29 and June 4 disembarked at Colon, Panama. All were temporarily quartered in houses at Camp Elliott, on high ground, 25 miles from Colon. June 23 three companies were transferred to Camp Reid at Corozal, on low ground, about 2 miles from Panama. At Camp Reid mosquitoes were very numerous. Each man was provided with a mosquito net and men on guard at night were required to wear head nets. It was impossible, however, to avoid mosquito bites. A dose of nine grains of quinine was given daily to all as a prophylactic. July 2 the three companies at Camp Reid returned to Camp Elliott. July 6 the battalion reembarked on the *Columbia* and sailed from Colon. After coaling at Guantanamo they reached Monte Cristi, Santo Domingo, on the 12th, and there 98 men and 2 officers were transferred to the U. S. S. *Dixie*. From the 6th to the 12th of July the total strength of the battalion was 398 men and officers. Of this number 135, or about 34 per cent, had malarial attacks. After the transfer of men to the *Dixie* had been effected the *Columbia* went to San Juan, P. R., to land the sick, and was there put in quarantine for five days. As the hospital accommodations at San Juan were inadequate to care for the large number of sick, the Department decided, on the recommendation of the medical officer of the San Juan Naval Station, to utilize the five days required for quarantine at San Juan in bringing the *Columbia* to a northern port, and ordered her to proceed without delay to Boston, Mass. The ship reached Boston on July 21, and 28 men and 3 officers of the marine detachment, infected with malaria, were transferred to the naval hospital, Chelsea. From the 13th to the 21st of July the strength of the battalion was 298 officers and men. Of this number 215, or about 72 per cent, had acute malarial paroxysms. It is not unlikely that the whole battalion was infected. With the change to a northern climate and the free administration of quinine to every member of the detachment, the percentage of cases rapidly declined to 10.7 per cent on July 21. No fatal cases occurred.

THE MARINES AT CAVITE, P. I.

The quarters for marines at the San Filipe barracks, navy-yard, Cavite, P. I., are most unhygienic and should be abandoned. The ventilation is bad, there is overcrowding, and the water-closet facilities are remote. A well-ventilated and sanitary barracks building has recently been constructed just outside the navy-yard for a part of the force kept at the station. The influence of the improved hygienic conditions afforded by the new building is strikingly shown by a percentage of less than 1 per cent of sick as compared with nearly 13 per cent for the old, insanitary quarters in the yard. It is of the utmost importance that this condition be done away with as soon as practicable. A site on Manila Bay adjoining the hospital reservation would be, hygienically considered, a most suitable location for marine barracks.

MIDWAY.

The Bureau invites attention to the conditions under which the small force stationed on the island of Midway live, as reported by the medical officer. The officers and men are housed in tents. During the summer, which lasts about eight months, flies abound in such swarms that it is difficult to eat or sleep. In winter the tents offer little protection from the prevailing sand storms. Water for drinking is obtained from the employees of the cable company. The bathing facilities are those afforded by the ocean, and rough weather frequently makes these impracticable. Lanterns are the only sources of artificial light at night. In the interest of the comfort and the mental health of the men and officers the necessity for the immediate erection of suitable living quarters for the detachment is submitted. It is understood that comfortable quarters can be built without great expense, and the construction of such buildings as may be necessary should not be further delayed if the guard is to be continued at Midway.

NAVAL STATION, HAWAII.

The present sick quarters are inadequate to the needs of the station, as provision is made for the care of serious cases of illness among the naval personnel at the civil hospital. The small dispensary suffices for emergency cases.

The opening of a naval station at Pearl Harbor will necessitate the building of a naval hospital there. A tract of land near the Punch Bowl, suggested as a desirable location for such a hospital, has been inspected, but this location is too remote if the site proposed for the station at Pearl Harbor be adopted.

GUAM AND TUTUILA.

During the year, as in previous years since the American occupation, medical supplies in excess of the actual needs of the personnel have been issued to the naval stations at Guam, L. I., and Tutuila, Samoa, to make some provision in the interests of humanity for the natives, who lack such supplies and have no means to obtain them from other sources. The protection of the naval stations at these remote insular possessions held under the jurisdiction of the Navy Department necessitates most careful supervision by the medical officers of the sanitary welfare of the native population. The natives of both of these islands are entirely dependent for medical and surgical care on the medical officers attached to the naval stations, and as they are both needy and impoverished, a generous expenditure of medical and surgical supplies was warranted to meet their urgent necessities and to protect the sanitary interests of the naval community. The services of the naval medical officers have been freely given to the natives and the Bureau notes with satisfaction that this duty has been performed with efficiency and enthusiasm.

A distinct step in the progressive improvement of the condition of the natives in Guam was taken in the completion and occupation at Agaña, September 23, 1905, of a hospital for women and children. The money for its construction was obtained by subscription, fairs, and sales. It is managed by a private, incorporated association and receives aid from the island government. The governor is president of the association; the senior medical officer is a member of it and the superintendent of the hospital. This hospital is reaching in its wards more patients than were ever available for treatment before. A dispensary for outdoor patients has been established in connection with it. A nominal charge is made for each prescription and dressing to assure a small income for the funds of the association. The Maria Schroeder Hospital, for men and boys over 12, and the Susana, the new hospital, for women and children, give the native population greatly needed and proper places for treatment. A small laboratory for bacteriological and chemical work has been completed, and will greatly facilitate the diagnosis and study of diseases in Guam. Young native women are under training in the hospitals and, with proper selection, show considerable aptitude for the work of nursing. When eventually trained, these nurses will replace the incompetent midwives, who are now the only available female nurses on the island. Special training in treating the native sick has been given four natives employed in the hospital as laborers with the intention of using them as native hospital apprentices in remote towns at the southern end of the island. A sanitary order issued by the governor December 8, 1905, providing for systematic sanitary inspection under the immediate direction of the senior medical officer, will undoubtedly do much to improve the cleanliness and hygienic conditions of Agaña, but no proper sanitary condition of the town can be secured until provision is made for a water supply and a sewerage system.

To the absence of a supply of pure water for drinking purposes is attributed the almost incredible prevalence of intestinal parasites among the natives. It is represented that $50,000 would be sufficient to construct and put in operation the needed system of waterworks, and the subject is again submitted to the Department's consideration, with a view to such recommendation to Congress as may be deemed advisable.

At the first session of the Fifty-ninth Congress an appropriation of $2,000 was made for the digging of an artesian well at Agaña. It is hoped that this may be successfully completed and aid in securing for the town a supply of good drinking water.

The total population December 1, 1905, was 10,501. During that year 465 births and 319 deaths occurred, an excess of births over deaths of 146.

General vaccination begun in December, 1904, was continued, and in June, 1905, the whole population had been vaccinated. All children born during the preceding twelve months are vaccinated in January of each year. An infectious, painful, repulsive, and disfiguring disease, the cause of which is not yet known, and for which the name rhino-pharyngitis mutilans has been suggested, prevails in the island. A full and interesting account of this disease by Surg. J. F. Leys, U. S. Navy, appeared in the Bureau's report for 1905. In this disease the nose and the upper part of the face are destroyed by slow ulceration while the tongue is unaffected. Persons of all ages, from 3 to 80 years of age, are affected. Thruout the active state of the disease, which sometimes lasts months or even years, the patients, if in good condition at the beginning, retain their flesh and strength. The mortality of the disease is low, but the face is rendered so repulsive by the characteristic ulceration that many of its victims avoid public notice. It seems somewhat amenable to treatment. Altho it is estimated that there are about 200 cases among the natives no member of the naval force on duty in Guam has yet contracted the disease. In January, 1906, the governor proposed, from motives of humanity toward the natives and in the interests of the naval station, to erect near the Tumon leper colony, 25 buildings of cheap construction for the isolation and care of a hundred of the unfortunates afflicted with the most contagious form of the disease, and to pay for the cost and maintenance of the same from the funds of the insular government. As the naval establishment must rely on native labor, and as the health of the naval personnel will always be closely related to that of the natives with whom contact is unavoidable, such an isolation colony is necessary, not only for the protection of the laborers but also for the safety of the officers and men. It seems only just, therefore, that the burden of maintaining this colony should not fall entirely upon the islanders and the Bureau concurred with the governor in submitting this as a matter calling for immediate relief from Congress, provided such recommendation should meet with the approval of the Department.

May, 1906, the governor reported to the Department that, upon the urgent recommendation of all the medical officers of the station, he had found it necessary to segregate at the Tumon leper colony 61 lepers and at a colony to be known as the Ypao colony, in the district of Agaña near Ypao, 41 persons affected with the loathsome and contagious disease called gangosa, rhino-pharyngitis mutilans; that this left 27 lepers and 86 gangosas at large in the island; that many of these lepers and gangosas were living in the town of Agaña and came in almost daily contact with the employees of the Federal colony, and that their removal had become so imperative, for the protection of the Federal force, that such action could be no longer delayed. Every case of leprosy and gangosa known to exist in the island had been carefully recorded, descriptive lists made out, card numbers given, and photographs of the afflicted persons taken. He stated also that the island treasury could stand the cost of the segregation of these afflicted people but for a brief period, and if Government aid should not be extended to the island thru an appropriation by Congress it would soon be necessary to set at large a number of lepers and gangosas, owing to the inability of the insular funds to meet the cost of their maintenance. The Department approved and earnestly commended the recommendations of the governor of Guam to the consideration of the Committee on Naval Affairs of the House and Senate, but, unfortunately, without securing favorable action toward the relief of the island treasury by Congress.

The water supply of the naval station, Tutuila, Samoa, is drawn from a reservoir situated high up between two hills back of the station. The watershed for this reservoir comprises 215 acres, of which 15 acres are under cultivation for taro. As there is reason to believe that the whole area may at some time be under cultivation, it seems advisable that this tract of land be purchased by the Government to prevent contamination of the water in future. A small one-story building, containing four rooms and a kitchen, is used as sick quarters for the station ship, the sick bay of which, located below the gun deck, is unsuitable for use in the climate of Samoa. This house is over 30 years old, is in constant need of repairs, and is insufficient for the needs of the station. New and larger sick quarters are needed, with a modern operating room. In the rear of the present sick quarters is a thatched-roof, Samoan house, known as the Samoan Hospital, in which hospital cases among the natives are treated. When a sick native enters a hospital the Samoans consider it indispensable for a number of relatives to accompany him to attend to his wants. A native house meets this requirement admirably. Another Samoan house is to be built near the present one to accommodate more cases. About 7,000 cases were treated in the hospital clinic for natives during the year, and the number presenting themselves for treatment is growing daily. It is interesting to note that the prevalence of pneumonia, tuberculosis, and asthma has been largely increased thru the wearing of the American style of dress by the natives. When these clothes are wet by the frequent rains no effort is made to dry them, and pulmonary affections result. When only the lava-lava was worn by the natives and the body was annointed with cocoanut oil, the water ran off immediately, and the rain had little or no effect upon their constitutions.

UNITED STATES NAVAL STATION, OLONGAPO, P. I.

Owing to the importance of questions of sanitation in connection with extensive dredging and grading operations, it is strongly recommended that the matter of a proper system of sewerage be carefully considered at the inception of work at this station. The present conditions are such that disastrous results might ensue to the personnel employed in developing the station. Without an adequate and efficient system for the disposal of sewage there will necessarily be serious impairment of the efficiency of the force engaged in making the improvements contemplated.

In addition to a proper system of sewerage there should be established a small but complete bacteriological laboratory to insure the detection of infectious diseases at the earliest possible moment.

The immediate demand for hospital facilities can be supplied by the Canacao Hospital, but there is urgent need of adequate dispensary facilities for the emergency work of the station. The present sick quarters should be enlarged to accommodate not less than 30 patients, and there should be added a new operating room, a bacteriological laboratory, and a screened isolation ward for 6 patients. The cemetery should be moved across the bay to a point below the site selected for the hospital. The ground vacated thereby should be kept for emergencies in connection with infectious diseases.

The site selected for the hospital reservation seems eminently adapted to hospital purposes; its water supply, drainage, and exposure to prevailing winds fulfil all requirements. When the needs of the station warrant it an appropriation will be asked to construct a hospital with accommodations for 100 patients, and so arranged as to permit of enlargement when required by the increasing demands of the service.

Sanitarium, naval reservation, Baguio, Benguet, P. I.—After careful study of the elevation, climatic conditions, and environments of the naval reservation at Baguio, the summer seat of government of the civil authorities of Manila, it is not considered advisable to recommend the establishment of a sanitarium at Baguio until such time as reliable and easy means of transportation from Manila to Baguio be in operation. At present the railroad extends only to Dagupan, and the road following the canyon from Camp 1 to Baguio is frequently made impassable for days by the heavy rains of the mountains.

EPIDEMIC OF TYPHOID FEVER ON THE U. S. S. PENNSYLVANIA.

An epidemic of typhoid fever occurred on the U. S. S. *Pennsylvania* during the months of February, March, and April, 1906, at Guantanamo Bay, Cuba, following a short visit for general liberty at Kingston, Jamaica, where the disease had recently prevailed.

Previous to the outbreak the itinerary of the ship was as follows: Culebra, February 6, for Kingston; Kingston, February 7 to February 14; Guantanamo Bay, February 17. February 25, 19 days after leaving Culebra and 9 days after leaving Kingston, the first case of typhoid occurred. March 16, 30 days after leaving Kingston and 27 days after reaching Guantanamo Bay, the second case occurred, and from that date until the 8th of April 23 cases appeared. As they were admitted during a period of 23 days, it is likely that all were infected at about the same time. Taking into consideration the period of incubation of the disease—from 8 to 23 days—and the fact that many of the crew drank shore water and bottled beverages on the small-arm target range and recreation grounds, infection was thought to have taken place at Guantanamo. This view was favored by the circumstance that a case of typhoid developed at Guantanamo in one of the crew of the *Alabama*, who had had no communication with the *Pennsylvania*. On the other hand, the crews of all the vessels of the fleet, comprising several thousand men, were exposed to the same conditions at Guantanamo and, with the exception of the one case on the *Alabama*, the disease was confined to the *Pennsylvania*. Nineteen days intervened between the first case and the second. For these reasons it seems not unlikely that the infection might have been conveyed in some way from the first case to the others. There were in all 44 cases. One died at Guantanamo, 1 recovered on board ship, 8 were sent by the *Columbia* to the Norfolk hospital, and 23 of the remainder were taken by the *Pennsylvania* to the New York hospital and 11 to the Philadelphia hospital. Subsequently 1 died and 41 recovered.

YELLOW FEVER AT PENSACOLA, FLA., AND NEW ORLEANS, LA.

In connection with the naval stations at Pensacola, Fla., and at New Orleans, La., it is satisfactory to note that during the epidemics of yellow fever in the cities of Pensacola and New Orleans in 1905, the precautions taken for the protection of the stations were effective and no case of the disease occurred in the naval personnel.

TUBERCULOSIS IN THE UNITED STATES NAVY AND MARINE CORPS.

If gunshot wounds, drowning, burns, and local injuries are eliminated tuberculosis stood second in 1900, fourth in 1901, and first in 1903, 1904, and 1905 as a cause of death in the Navy and Marine Corps. The annual reports of the Bureau show that from 1900 to 1905, inclusive, the total number of cases for each year was as follows: 131, 146, 145, 250, 268, and 243. In 1895 the ratio of cases per thousand was 3.2; in 1905 it was 6.1. These ratios are probably below the truth as the disease may have sometimes escaped detection and cases of chronic bronchitis, broncho-pneumonia, and pleurisy may not have been attributed to it because the tubercle bacillus was not sought for or was not discovered. From the clinical point of view the pulmonary form of the disease is the most common. Of 1,183 cases of tuberculosis for the years 1900 to 1905, inclusive, only 79 were not pulmonary. The distribution of tuberculosis according to the different ratings shows the deck force, mess attendants, and cooks to have been most affected, with a percentage of 71.56 per cent, and the personnel of the machinery to have come next, with a percentage of 28.43 per cent. Tuberculosis is undoubtedly imported sometimes in a latent or an incipient condition by recruits and often develops as a result of infection on board ship or at shore station. During 1905, of the men admitted to the sick list with tuberculosis, 46 had been in the service six months or less, 36 between six months and one year, 46 between one and two years, and 77 more than two years. The prevalence of tuberculosis in the Navy is thought to be due to the enlistment of recruits in whom it is latent or in whom it is not detected by the examining medical officers, to the practice of discharging to duty a large percentage of those suffering with the disease and the retention on board ship of tuberculous cases. Of the total of 299 cases remaining from 1904 and admitted in 1905, 97 were discharged to duty. Experience shows that the disease persists in a majority of those so discharged. When it is considered that tuberculous patients discharged to duty may harbor the disease in its most insidious form and that in the interval between discharge and readmission each one of these has been a focus of infection for hundreds of well men and boys who were forced under the conditions of the service to live intimately with them, eating from the same mess gear and drinking out of the same cups, the grave responsibility of those who return these cases to duty is emphasized.

The prophylaxis of tuberculosis begins with the recruit. Only those should be enlisted whose health and constitution are such as to furnish the proper resistance for service in any climate. Especial attention should be given to the dimensions of the chest and the conformation of the thorax, which would make one suspect a disposition to affections of the organs of respiration. A system of recruiting which selects only the most robust men is the first and not the least important step in the struggle against tuberculosis in the Navy. The principle of the selection of the personnel should dominate the prophylaxis of tuberculosis, and should be followed in the service afloat. Men who are to take part in swimming and boxing contests and crews of racing boats should have a preliminary examination of the heart and lungs. Men sentenced to confinement and those under sentry's charge awaiting trial by court-martial should be frequently inspected and watched. The crews of ships when commissioned, drafts of men received on cruising ships, and detachments of marines detailed for service beyond seas should be examined as to the condition of the organs of circulation and respiration, and all that appear doubtful from the point of view of tuberculosis should be excluded. It is especially necessary that men with chronic coughs, and above all, those who have been in hospital for a pulmonary affection should be kept under constant medical surveillance. In order to guard against the anemia which predisposes to tuberculosis and which ensues so rapidly upon prolonged stay below decks, men employed in storerooms, dynamo rooms, berth deck cooks, mess attendants, barbers, yeomen, etc., should be regularly sent on deck for exercise. Tubercle bacilli in spite of all precautionary measures may exist on board or may be imported in many different ways. Whether acquired on board or developed from a latent condition under the depressing influences of ship life, the subject of tuberculosis becomes a focus of contagion which must be eliminated at all cost. He should at once be isolated and his effects disinfected; at the first possible moment he should be transferred to hospital and under no circumstances or pretext should he be allowed to serve again in ship or barracks unless examination after long observation shows him to be beyond all question free of the disease.

NAVY SANITARIUM FOR TUBERCULOUS PATIENTS.

In order to secure for the unfortunate subjects of tuberculosis conditions of climate and environment favorable for the open-air treatment of the disease, and to protect other patients in naval hospitals from the danger of infection by them, the Bureau has continued to utilize the facilities of the United States Army General Hospital at Fort Bayard, N. Mex., for selected cases. Many patients have received great benefit from treatment in this hospital. The experimental camp of canvas tents established in connection with the naval hospital at Pensacola, Fla., in 1903, has been kept up. Altho the facilities at this camp are crude, and many conveniences are lacking, and its location at sea level may not suit all cases requiring treatment, fairly good results have been attained, and patients with undoubted tuberculosis have to all appearances recovered and been restored to active duty. Of the total number of 99 cases treated during the year 1905 the following disposition is recorded: Invalidated from service, 28; granted sick leave, 2; died, 7; continued to 1906, 30; discharged to duty, well, 21; discharged, expiration of enlistment, not cured, 10. In the naval hospitals at New York, Mare Island, and San Juan, P. R., patients with tuberculosis have been isolated as far as possible and housed in tents. At the Mare Island hospital, for the calendar year, the results of the treatment of tuberculosis in tents were as follows: Number of cases treated, 56; cured, 6; decidedly improved, 28; slightly improved, 4; unimproved, 7; died, 2; found after admission not to have tuberculosis, 9; invalided from the service, 10; sent to Fort Bayard, N. Mex., 16; discharged from the service, expiration of enlistment, 1; continued to 1906, 12.

At the army hospital, Fort Bayard, N. Mex., there are difficulties inherent to the control and discipline of navy patients under army regulations; the camps are only expedients and the best means obtainable under the circumstances for the treatment of tubercular cases and the protection of patients with other diseases in naval hospitals. The naval service is therefore in urgent need of a well-appointed sanitarium of sufficient capacity to care for 150 tuberculous patients. The attention of the Department has been invited in previous reports to the necessity of establishing such a sanitarium. Preliminary investigations are being made and several locations are under consideration by the Bureau with a view to the selection and recommendation of a site possessing the most favorable conditions for the establishment of a naval sanitarium for cases of tuberculosis in the Navy and Marine Corps.

BENNINGTON AND KEARSARGE DISASTERS.

Two unfortunate incidents, occurring during the year, materially increasing the total of mortality in the service, are to be noted.

While the U. S. S. *Bennington* was preparing, in the harbor of San Diego, Cal., to go to sea on the morning of July 21, 1905, one of her boilers exploded, killing 1 officer and 65 men, and injuring the majority of those on board.

The surgeon of the army post, the surgeon of the marine hospital, and the physicians of San Diego did everything in their power to assist the medical officer of the ship in caring for the injured.

Additional medical officers of the Navy were hurried to San Diego. Thru the courtesy of the Army and with the aid of Maj. W. L. Kneedler, surgeon, U. S. Army, a temporary hospital was established in a vacant barracks near the water front. A detachment of hospital corps men of the Army, ordered by the military authorities at Presidio, rendered valuable assistance to the hospital corps men of the Navy sent from Mare Island.

The injured, who were cared for at first in the Agnew Sanitarium and the St. Joseph's Home, private institutions, were transferred as fast as their condition would permit to the temporary hospital. The hospital was closed on the 13th of August and the 25 remaining patients were removed in a special tourist car to Porta Costa, whence they were transferred by navy-yard tug to the naval hospital, Mare Island, Cal.

On April 13, 1906, while the U. S. S. *Kearsarge* was engaged in target practise with the fleet off Cape Cruz, Cuba, the accidental ignition of three sections of the powder charge of a 13-inch gun in the forward turret resulted in the grave injury from burns, external and internal, of the entire personnel in the turret, comprising 2 officers and 12 men. The 2 officers succumbed to the injuries received early on the following day. Five of the injured men died before 10 p. m. of the day of the accident, 3 died subsequently, and 4 recovered.

The forward turret had completed target practise, but a charge remained in the left 13-inch gun, as the time limit had expired before it could be fired. Thru accidental contact of the steel extractor used to withdraw the powder charge, in the hands of one of the men, with an electric switch in the turret chamber some of the metal composing the switch was melted by electrical action, dropt to the turret floor, and ignited about 165 pounds of powder just removed from the gun. A detailed report of the unhappy incident, by the medical officer of the vessel, is found elsewhere in this report. Such accidents, in spite of every precaution, appear to be liable to occur, and give emphasis to the opinion of this Bureau that it is especially desirable to have in the fleet, when assembled for the annual record target practise, a well-equipped hospital ship, particularly as the operations of the fleet at this time are in waters remote from a station provided with a naval hospital.

The immediate survivors of the accident on the *Kearsarge* were transferred in one of the armored cruisers to the naval hospital, New York, for further treatment.

RUSSIAN MEDICAL AND SANITARY FEATURES OF THE RUSSO-JAPANESE WAR.

Surg. Raymond Spear, U. S. Navy, who was detailed to report on the medical, surgical, and sanitary methods of the Russian military and naval forces, reached the seat of hostilities late in the course of the Russo-Japanese war, and his observations were, in consequence, largely confined to the army. His valuable report has been published and gives at length the results of his study of the organization of the Russian medical corps, the army hospital corps, female nurses, field organization, the Russian Red Cross service, the provisions for the care of the sick and wounded, the climatic and sanitary conditions in Manchuria, and the medical organization in the army, including its equipment and methods of transportation. Interesting cases are cited in detail and descriptions are given of Red Cross hospital trains and movable railroad hospitals. The military bacteriological laboratories are noted with remarks on serum therapy and parisitology. Many of the larger hospitals, such as the Liban and German Red Cross hospitals, are described. Hospital barges on rivers and convalescent camps receive attention. Under health reports of the army are mentioned the general health conditions, the prevailing diseases, and gunshot, shell, and other wounds. Remarks upon the disposition of the dead, the use of artificial limbs, and pensions conclude this part of the report.

The last chapter deals with the medical organization of the Navy, naval hospitals, ship conditions during battle, and hospital ships.

This report by Surgeon Spear and that by Surgeon Braisted on the medical and surgical aspects of the war between Russia and Japan permit an interesting comparison of the organization and methods of the medical departments of the army and navy of each country, and demonstrate the value of observations of such matters in time of war by representatives of friendly nations.

NEW BUILDINGS COMPLETED.

The United States naval medical supply depot, Brooklyn, N. Y.—The new building for this depot has been completed and occupied. It is fitted thruout with metal shelving and is practically fireproof. The machinery from the old building has been transferred to it. The advantages of the increased facilities afforded by the new supply depot for the reception and distribution of the large amount of medical and surgical stores now required by the naval establishment have already been demonstrated.

Quarters for medical officers.—The quarters for the junior medical officers at the naval hospital, New York, and the naval hospital, Norfolk, Va , have been completed and occupied. The completion of these houses, two in number at each hospital, makes available for other purposes the rooms formerly occupied by the junior medical officers in the hospital buildings.

NEW BUILDINGS UNDER CONSTRUCTION.

New naval hospital, Naval Academy, Annapolis, Md.—Work on the hospital at the Naval Academy has progressed satisfactorily. The hospital consists of an administration building, a laundry and power house, and north, south, and east wards, with connecting corridors and solaria. It is hoped that it will be ready for the reception of patients by the end of the calendar year. The omission of one ward and the isolation wards from the original plans in order to keep the cost within the allotment renders it necessary, as speedily as possible, to complete the hospital by adding the omitted buildings. The large increase in the number of midshipmen and of officers and men on duty at the station makes the provision of isolation wards especially urgent. Such wards should be provided without delay.

NEW BUILDINGS RECOMMENDED.

New naval medical supply depot at Mare Island, Cal., and new dispensaries at the Mare Island and League Island navy-yards.—The construction of a large building slip immediately in the rear of the naval medical supply depot at Mare Island, Cal., has necessitated extensive excavating and grading extending to the foundations of the building. A vessel under construction in this slip will be within 20 feet of the depot, will shut off the light, and will make it impossible to carry on work properly because of the noise of the riveting machines. The dispensary for the navy-yard is included in the supply depot building and the disturbance caused by the riveters at work on vessels in the slip will be so great that all the windows will have to be closed to carry on ordinary conversation. Under such conditions proper examination and treatment of the sick and injured in the dispensary will not be possible. The present supply depot is the only one on the Pacific coast and is inadequate and unsafe for the storage and handling of the medical and surgical supplies now required there. The yard dispensary should be distinct from the naval medical supply depot and separate buildings to serve as such should be constructed in suitable locations. The Bureau of Yards and Docks has been asked to include in its estimates for public works the cost of erecting at the Mare Island Navy-Yard a new supply depot ample in size and located on ground near the naval hospital; also of new dispensaries at Mare Island and League Island similar to those at the Norfolk and New York navy-yards. Since this request was submitted to the Bureau of Yards and Docks the removal of the building occupied as a naval medical supply depot and yard dispensary at the Mare Island Yard was recommended as necessary on account of construction work in the adjoining building slip. The Bureau approved the recommendation for the removal of the building in question to the site selected, but stipulated that the removal should be made subsequently to the construction and readiness for occupation of the new medical supply depot proposed, and that, after removal, the building should be fitted up for use only as a yard dispensary. It is desirable that the medical supply depot be in a building separate from that occupied as a yard dispensary. If it is decided that the building at present occupied as a medical supply depot be ultimately moved, as proposed, and used only as a yard dispensary, there will be no necessity for a new dispensary building.

New naval medical supply depot, Cavite, P. I.—At the naval station, Cavite, P. I., the naval medical supply depot has no building of its own, but occupies detached parts of several buildings belonging to other departments of the navy-yard, so separated as to make proper administration impracticable. During the past year its already limited allotment of space was further reduced to afford additional room for another department. In consequence medical stores received from the United States must be unpacked in the open air and only when necessary for use, so that proper inspection, accounting, and care thereof are impracticable, with consequent deterioration and loss. At this depot all medical supplies for the Navy in Asiatic waters are assembled and distributed. The immediate erection of a suitable building is urgently necessary for the protection of public property. An estimate for the construction of a building for the naval medical supply depot on the grounds of the naval hospital, Canacao, P. I., is included in the annual estimates.

Naval hospital, Great Lakes.—The establishment of a naval training station on the Great Lakes designed for a complement of a thousand apprentice seamen, and arranged for subsequent expansion to accommodate two thousand, necessitates suitable provision for a naval hospital which should be finished and ready for the reception of patients when the other buildings of the station are completed. An estimate for the erection of suitable hospital buildings is included in the annual estimates and it is recommended that Congress be asked for an appropriation to insure their construction and completion at the time desired.

NAVAL HOSPITALS AT GUANTANAMO, CUBA, AND CHARLESTON, S. C.

The Bureau again invites attention to the fact that there are no hospital facilities for the care of the sick at the naval stations at Guantanamo, Cuba, and Charleston, S. C. With the development of these stations the necessity for such provision is becoming more and more apparent. At Guantanamo, especially, the need of a hospital with laboratory facilities and quarters for medical officers is immediate and urgent. Naval vessels serving in the West Indies frequently call at this station and leave patients who are too ill to be retained on board ship or who are affected with contagious diseases. These patients have been treated by the medical officers of the *Amphitrite* and *Monongahela* at a detention camp on the southern side of Toro Cay. During the winter maneuvers the vessels of the Atlantic fleet, with an enlisted personnel approximating 10,000 men, pass several weeks in Guantanamo Bay and give a daily average of from 50 to 100 patients who need hospital treatment. Many cases occur in which X-ray work is needed and laboratory facilities are necessary for correct and prompt diagnosis. Accidents involving a number of men have occurred and are liable to happen again, and a hospital is necessary to meet such contingencies. The Bureau recommends that provision be made for the erection of a suitable hospital establishment at the naval station, Guantanamo, Cuba, at the earliest practicable date.

As the nearest civil hospital is nearly 20 miles distant at Guantanamo City, the commandant recommended that some provision be made at the station for the treatment of cases of sickness among the large number of laborers employed thruout the year. The recommendation was approved by the Department and a temporary hospital for laborers was authorized. It is hoped to have this hospital ready for use before the second rainy season begins. During the year the sick laborers have been attended by the medical officers of the station, who have taken great interest in the work.

Twelve thousand dollars were appropriated at the last session of Congress for the construction at the navy-yard, Charleston, S. C., of a dispensary building. When completed, this dispensary will provide for the medical work of the yard in prescribing for men and officers and in giving first aid to the injured, but it will not supply hospital facilities for the care of the sick. The Bureau, therefore, recommends that provision be made also for a hospital at the Charleston Naval Station.

LAVATORIES, WATER-CLOSETS, AND WASH ROOMS FOR SHIPS IN DRY DOCK.

The lack of proper and adequate lavatories, water-closets, and laundry conveniencies for the use of crews of vessels in dry dock has long been regarded as prejudicial to the welfare and sanitary interests of the personnel of the Navy as well as the sanitary interests of the various navy-yards concerned. At the navy-yard, Norfolk, Va., alone, has provision been made for washing the clothes of crews of vessels in dry dock; only at the navy-yard, Puget Sound, Washington, are there lavatory facilities and they are inadequate.

Ample water-closet conveniences for the use of crews of ships in dry dock exist only at the New York, League Island, Puget Sound, and Portsmouth, N. H., navy-yards. These important sanitary deficiencies were noted by the Bureau in its report of last year. Prior to that the special attention of the Bureau of Yards and Docks had been invited to the matter and action as prompt as practicable had been recommended to secure the installation of adequate sanitary accommodations at every naval station provided with a dry dock.

The whole time a vessel remains in dry dock the operation of her lavatories and flushing and sewerage systems is necessarily suspended, and due regard for the laws of personal hygiene and the sanitary welfare of the personnel of the service make it urgently necessary that conveniently arranged and accessible facilities of the character indicated be provided without delay.

HOSPITAL SHIPS.

The necessity for a hospital ship as an integral part of a fleet fully prepared to meet conditions to be expected in actual hostilities is recognized by all military authorities, and it may be confidently assumed that no civilized nation at the present time would be inclined to disregard the obligation to make such provision for the humane care of the sick and injured.

Experience in recent wars has practically demonstrated that a ship designed and built with the distinct object of use as a hospital ship gives far more satisfactory service than a ship diverted from commercial use and equipped for service as a hospital ship.

The Bureau has given much thought and consideration to the subject of hospital ships, and as a result there have been evolved general plans of a model type of vessel, combining the characteristics deemed essential to secure the most efficient and satisfactory care of the sick and injured. In preceding annual reports the construction of two such model-type hospital ships for the Navy has been urged, one for service in the Atlantic and the other in the Pacific, and it is again earnestly recommended that Congress be asked to make provision for them. In 1903 the Department approved this recommendation. It is submitted that a fleet of the magnitude of that of the United States, having due regard to the care and welfare of the sick and injured of its personnel, may not be regarded as fully prepared for a condition of war—which is the normal condition of a fleet—without so important an adjunct as a hospital ship. While it is unquestioned that the service need for a hospital ship exists in a fleet engaged in actual hostilities, it is the opinion of this Bureau that with an aggregation of vessels as large as that composing the United States North Atlantic Fleet, with an enlisted personnel of 10,000 men or more, there is, under conditions of peace, abundant opportunity for the useful employment of a hospital ship. Inadequate hospital facilities would thereby be satisfactorily supplemented, and the sick, now oftentimes necessarily detained on board vessels engaged in active drills, with the unavoidable discomfort and harm incident to such environment, could be promptly disposed of with resultant relief from inconvenience and embarrassment to the vessel concerned, and increased efficiency thru saving the time now lost from duty with the fleet by ships detailed to transfer sick or injured men and officers to a remote hospital or naval base.

It is regarded as important that the Medical Department of the Navy should have opportunity to gain experience, under service conditions, in the administration and management of the hospital ship so far as these concern the medical and hospital corps, and also in the medical and surgical equipment best adapted to secure the highest efficiency.

The *Relief*, which has been repaired at the navy-yard, Mare Island, Cal., and is now in reserve, while not regarded as an ideal hospital ship, will, in the event of being commissioned, satisfactorily meet the present requirements on the Pacific coast. A complete medical outfit was provided for the *Relief* in 1904, and, except so far as unavoidable deterioration may have taken place, is now in readiness for immediate use in connection with that vessel.

The necessity for a hospital ship operating in connection with the United States North Atlantic Fleet has been made apparent during the past year as in preceding years when the vessels have been assembled in the waters of the West Indies for the winter maneuvers and spring target practice. The transfer of a large number of sick in a vessel unprepared for their care, as was necessary during the past spring when the U. S. S. *Columbia* was so employed, and the diversion of the U. S. S. *Pennsylvania* from the fleet, to place her in touch with a naval hospital on account of an epidemic of typhoid fever, would have been avoided had there been a hospital ship on duty with the fleet. In this connection the following extract from the report by the surgeon of the *Pennsylvania*, April 15, 1906, on the epidemic of typhoid fever on that vessel is apropos:

> Attention is earnestly invited to the great need of a hospital ship as an auxiliary to the Atlantic fleet during the winter drills at Culebra and Guantanamo, not only as exemplified by the experience of this ship but also by that of probably all the other vessels of the squadron. Over 10,000 men have been assembled and at work in Guantanamo Bay since February 19, and for the sick of this large force there are no hospital facilities other than those provided by the sick bays of the different ships, some good, some fair, and some bad, but none appropriate for a human being seriously sick. The noise and vibration of a war ship in full activity create an irritation of no small moment to a person prostrated by illness in his bunk in the sick bay, from which he can not escape and which it is impossible to eliminate. The contagious diseases of the fleet have been cared for in tents on shore—mumps, measles, and cerebro-spinal meningitis. The whole shore line is infected with insects, and the best of camp hospitals on this station can hardly be considered desirable or safe for the care of contagious diseases.
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> It is understood that the *Columbia* before going north took on nearly sixty men for transfer to hospital. Many of these had been awaiting a means of transportation for some time and a number were seriously ill. The passage to Norfolk probably did not require more than four days, but even for this period the *Columbia* was in no way fitted for the purpose. It was the best that could be done, however.
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> The daily average sick list of the fleet may be estimated at from 150 to 200 men, one-third of whom perhaps are relieved from duty for trivial complaints. This gives a daily average of from 100 to 130 men who would reap the benefit of a hospital ship.
>
> Several cases have occurred this winter in which X-ray work was badly needed, and others arose calling for laboratory aid to diagnosis, impracticable to conduct on a densely populated war ship. These could easily have been supplied by a hospital ship.

> With the policy of using our undeveloped stations in the West Indies as bases for drills and maneuvers, and with the growing numbers yearly assembled, it would seem that the time had come when the hospital ship should be considered as essential to the large squadrons yearly brought together at these stations. Moreover, the development of the Navy has reached the point where hospital ships should be used not only on the plea of the needs of the present but also on the necessity of preparation and practice for the future.

It is the opinion of the Bureau that it would be a mistake to defer consideration of the important matter of providing for the construction of a hospital ship until such time as there exists a condition of imminent hostilities, and it is hoped that the recommendation regarding the construction of model-type hospital ships may receive favorable consideration.

Appreciating the sanitary value of bacterial investigation for the accurate determination of pathogenic conditions which may exist on board ship and harmfully affect the crew, the Bureau has given consideration to the practicability of installing bacteriological outfits on designated vessels. Lack of available space and conditions existing on cruising ships led the Bureau to decide that the issue of such outfits would be dangerous and inadvisable. Suitable space and conditions for the maintenance of a small bacteriological laboratory, which could be utilized for the needs of vessels of the fleet, would be secured on a hospital ship, and the installation of one is contemplated as part of the equipment of the hospital ships recommended by the Bureau.

HOSPITALS.

The completion and occupation in March, 1905, of the hospital at Canacao, P. I., has satisfactorily met the present needs of the service in the Philippines. The capacity of this hospital has usually been taxed to the limit of its accommodations and, altho of recent construction, it has already been necessary to give some consideration to recommendations looking to its enlargement.

The completion of the buildings comprising the naval hospital, Washington, D. C., and its readiness for occupation has secured for this station a thoroly modern and well-appointed establishment. With the addition of the two pavilions omitted from the plans originally approved because of insufficient funds to build them, the capacity of this hospital will be sufficient for the present needs of the station. The naval hospital at the United States Naval Academy, Annapolis, Md., is nearing completion, and when fully finished will be a model establishment There remains to be erected, to meet the requirements of the institution, the two isolation pavilions, impossible to build with the amount allotted by the Department for the erection of a hospital, but which formed part of the plans originally approved. The need of these two isolation pavilions is urgent, and the importance of adequate provision for the effective separation and care of cases of contagious disease occurring among the midshipmen can not be overestimated. Provision was made for the enlargement and renewal of the important base hospital at Norfolk, Va. With these exceptions the naval hospitals everywhere are in need of enlargement or reconstruction, to furnish adequate accommodations for the sick and to adapt them to the demands of modern medical and surgical practise. Minor improvements and needed repairs are undertaken as required, but the changes necessitated by reason of structural deficiencies and out-of-date plans, as well as obsolete methods of construction, are too extensive to admit of their being undertaken until special appropriation of funds has been made. The hospitals urgently requiring more or less complete reconstruction and material enlargement are those at Pensacola, Fla., Philadelphia, Pa., Newport, R. I., Portsmouth, N. H., and the navy-yard, Puget Sound. In addition, there are newly established naval stations of importance at Guantanamo, Cuba, at Charleston, S. C., and the training station on the Great Lakes, where no hospital has been provided and on which the progress of work is so far advanced as to suggest the necessity of immediate provision being made for the care of the sick. Representations as to the inadequate capacity and insanitary and obsolete features of the various naval hospitals and the desirability of modernizing them so that they may be satisfactory and creditable institutions have been made in the annual reports for the last four years, and the grave importance of the matter warrants the Bureau in again inviting the Department's marked attention to its consideration in the hope that funds for the purpose desired will be provided by Congress.

Naval hospital, *Portsmouth*, *N. H.*—This hospital, as stated in previous reports, is inadequate for the present and future needs of the naval station. It contains 27 beds for men and 3 for officers. The increase in the equipment of the navy-yard for construction and repairs, the presence of a large number of prisoners on the *Southery* or in the proposed prison on Seavey's Island, and the encroachment of new workshops on the situation of the present hospital will soon make imperative the construction of a new one of modern type and sufficient size in a more appropriate location.

The present provisions for the care of infectious diseases are very poor.

Only repairs necessary for the preservation of the hospital and outbuildings have been undertaken. The bacteriological laboratory was refitted, a new floor was put down in the kitchen, new rubber matting was laid in the hospital and the interior repainted, the boilers were retubed, and the damage caused by a fire to the boiler house was repaired. During the year 156 patients were treated, 17 of whom remained from 1904. Of these, 125 were discharged to duty, 1 to another hospital, 19 were invalided from the service, and 11 were continued to 1906.

Naval hospital, *Chelsea*, *Mass.*—The hospital building, commissioned in January, 1836, is old, and without great expense is incapable of being remodeled to accord with modern ideas of hospital construction. The good results obtained in the treatment of patients, however, are evidence that it has been kept in excellent sanitary condition. The operating room is lacking in many essential features for surgical work, yet the operations done therein have been followed in no case by infection and have given admirable results.

Provision was made by the Fifty-ninth Congress, first session, for the discontinuance of the present magazine in the city of Chelsea, Mass., the sale of such portion of the magazine and naval hospital grounds as may be undesirable for hospital purposes, and the application of the money derived from such sale to the remodeling and modernizing of the present hospital. As the sale of this ground was made provisional, however, upon the erection of a new naval magazine on the New England coast, the funds therefrom will, in all probability, not be available for the improvement of the hospital for several years to come.

Two residences for medical officers were appropriated for by the Fifty-eighth Congress. Plans for these were prepared, but the bids for their construction exceeded the amount allowed, and it became necessary to make new plans and advertise for new proposals. When these houses are completed, the quarters in the hospital now occupied by officers will be adapted for the use of the sick. During the year the barn, wagon house, boiler house, sterilizing house, annex, and cupola were reshingled or renewed. The walls and ceilings of the pest house were repaired. The walls and ceilings of the dead house were repainted, the interior renovated, and a new roof put on. The ambulance barn was painted and new flooring laid in the stalls. The boathouse was repaired and painted. The pier was repaired, and loose stones in the sea wall were replaced and backed with concrete. One thousand five hundred yards of wire fence were repaired or renewed. Repairs were made to broken ceilings of fourth floor and cellar of hospital, to iron gate at entrance to hospital grounds, to dumb waiter, to copper flashing of skylight of boiler room, to Dow portable electric machine, to plumbing of operating room and of urinals in annex, to sewer openings, and to miscellaneous plumbing. Ten screen doors in coal shed, bath tub and water-closet in surgeon's quarters, and two wall medicine brackets and glass shelves in second and third floors dressing rooms of hospital were replaced, and one water-closet bowl on third floor of annex was renewed. The electric fixtures and wiring of the hospital were repaired and altered. An X-ray machine was installed. The board walks were repaired, all wood furniture and woodwork in hospital and smoking room was painted, and the grounds and cemetery were cared for and kept in good condition.

There were treated in this hospital in 1905, 523 patients, of whom 45 were continued from 1904. Of these, 345 were discharged to duty, 67 from the service, 18 to other hospitals, 5 to the Government Hospital for the Insane, 7 were invalided on leave, 4 died, and 77 were continued to 1906.

Naval hospital, Newport, R. I.—During the year, and especially during the past winter, the capacity of this hospital has been overtaxed, because of the large increase in the number of apprentice seamen at the Naval Training Station, and on account of the prevalence among them of epidemics of infectious diseases. The hospital is manifestly insufficient for the station. The pavilion for contagious diseases has been crowded beyond its limits, and the use of tents has been necessary for the overflow of patients. This pavilion itself is badly arranged, and makes the proper isolation and treatment of infectious diseases very difficult. Tents are entirely unsuited for such purposes at Newport during the winter months when infectious diseases are most prevalent, owing to the cold, rain, snow, and severe winds. Fortunately the extensive epidemics of measles and mumps, which entirely overflowed the isolation buildings, occurred in the spring of 1906 when tents could be used to house the patients. But even then the tents were blown down and badly torn by the violent winds, and temporary shelter until repairs could be made, was given the occupants in the carpenter shop and in the furnace room in the basement of the infectious building, into which they were crowded with great discomfort. If these epidemics had occurred in midwinter tents could not have been employed, and the hospital would have been helpless to deal with the large number of patients, as the main building was full of medical and surgical cases, and no part of it could have been set aside for the care of cases of infectious disease. During the epidemics of measles and mumps cerebro-spinal meningitis was prevailing. The cases of this disease were treated in the smaller isolation building, and the cases of mumps and measles were cared for in the other and larger one on separate but connecting floors until the tents could be utilized. It is therefore evident that the construction of an additional isolation building for the care of infectious diseases at the Newport hospital is an imperative necessity, and the Bureau recommends that a building for this purpose be provided for and constructed to accommodate not less than 50 beds. The main building of the hospital, originally built as sick quarters for the training station when the number of apprentice seamen was comparatively small, and subsequently transferred to the control of the Bureau of Medicine and Surgery, has the faults of a building erected for the care of the sick without the guidance of expert advice in hospital construction. Subsequently, to meet the needs of the station as it was progressively enlarged, a special appropriation was secured and three pavilions were erected adjoining the hospital and occupied in 1902. Owing to the conformation of the ground these pavilions are below the level of the main building and were built without cellars and without means to secure proper ventilation of some of the wards. They are, unfortunately, not sufficiently strong in construction and are so shaken by the winter storms that the plaster is constantly broken and other damages are inflicted which need repairs. Realizing that the available ground of the present site is not sufficient to permit of the proper extension of the hospital to the capacity needed by this important station, the Bureau does not consider that further additions to it should be made. New barracks have been completed and occupied at the Naval Training Station, and the number of apprentice seamen has been nearly doubled. Experience has shown that the present hospital accommodations are inadequate to meet properly the requirements of the increased personnel, and its location is too restricted to admit of satisfactory enlargement of its accommodations, and, therefore, the Bureau is of the opinion that a new site with ample room for all essential buildings, preferably not on the island nor in proximity to the War College, should be secured, and on it should be constructed a well appointed, modern hospital establishment.

At the last session of Congress an appropriation of $15,000 was made to build quarters for the medical officers who are now obliged to live in the hospital, and another of $5,000 to make the quarters to be vacated by them available for the sick. It is recommended that Congress be asked to make appropriation for a modern hospital at this station and for the purchase of a proper site for the same.

Owing to the unsubstantial character of the workmanship in this hospital, numerous repairs have been necessary.

The roadway approach to and around the entire front of the hospital was practically rebuilt, and other parts of the road were filled in where necessary with crusht stone and gravel. All bare places in the hospital lawns were cut out and sodded. The eroding bank along the shore in front of the hospital was rebuilt with stone and cement in places at which it had caved in.

The entire roof of the main hospital building, exclusive of the wings, was reshingled, and the crude and leaky skylight over the operating room replaced with a new modern one. The slate roof of the infectious building was thoroly repaired. An insecure brick pier and twisted beam on it under the new addition to the main hospital were put in a secure condition. The area way leading to the basement of the main hospital and the piazza between the main building and the north wing were housed in for the winter months with a structure which can easily be removed and put up again when required. The tool shed at the extreme end of the north wing was extended to the west about six feet to allow protection from the weather to the horse and carriage while waiting between trips during the day.

Falling and insecure plastering in operating room, hall ways, and other places where danger required its removal was taken down and replaced.

One new siphon flush bowl was put in the sick officer's water-closet to replace a broken one, and a new linoleum to cover the floor was laid. Three other flush bowls were also necessary for other water-closets of the hospital. These siphon flush bowls replaced are excellent ones, but on account of the settling and the shaking of the buildings by the winds, both the lugs broke off at the flush and siphon attachments in such a way as to make repair impossible. In view of the above facts a more simple and apparently as effective a bowl was procured, with flexible rubber connections, for the last three bowls replaced.

The flush bowls, flush tanks and urinals in both the main and infectious buildings were all thoroly overhauled and cleaned, and two of the old urinals that had been repaired in years past and had finally got beyond repair, were replaced with new ones. All other plumbing in both buildings was put in good condition, and supplied with new parts where necessary. Pipes in the basement of the infectious building burst by freezing were taken out and replaced with new piping.

Pipes and faucets in the operating room burst by freezing were taken out and replaced, and immediate steps taken to prevent a recurrence of this trouble, by connecting the large heater in this room directly with the auxiliary boiler. Heretofore it has been impossible to heat at all times from the main heating system this exposed room, situated as it is on the northwest corner of the upper floor of the main building, and exposed to the full force of the west and northwest winds of the winter months, which made the room too cold to operate in on some days. The change mentioned has remedied this condition and no further trouble in subsequent winters is expected.

The engine and governor of same, the steam pump and mangle of the laundry were thoroly overhauled, cleaned, and supplied with new parts where necessary, and a new 10 by 10 inch pulley was put on shaft connected with the washing machine.

The main and auxiliary boilers were tested about ten months ago, and such pipes and valves as were necessary were procured and installed. The auxiliary boiler was connected with the steam feed-pump of the main boilers, and all boilers are now connected with a brick cistern 8 by 8 feet, built the latter part of last December on the south side of the engine room, to receive all the condensed water from the heating system and to be filled, if necessary, from the city water supply. A supply of water to run all the boilers in the main hospital, in the event of the freezing or injury of the water mains, was thus obtained and a considerable reduction in the amount of the quarterly water bill of the hospital was secured while it was made practicable to run the boilers with condensed water and so to prevent the corroding and pitting of the boilers and pipes which had hitherto taken place to a considerable extent.

On examining and testing the boilers, May 19, before shutting down the two main boilers for the summer, one of the main boilers was found to require immediate repairs at one of the handhold plates, in order to start it up again while the auxiliary boiler, which was found to be unsafe to run, was repaired. A new and larger one was procured and put in place in view of probable increase in the demands on the present heating and power systems at this place. A check valve was put in the circulating pipe of the hot-water tank over the main boilers to correct the trouble it had caused by forming steam and forcing it thru the cold-water pipes of the building. The steam traps were overhauled and a new steam trap installed in connection with the change in the heating of the operating room. Numerous repairs were made to the pipes of the heating, water, and plumbing systems thruout the year.

A new steam coil was put in the hot-water tank of the infectious-disease building. A broken radiator was taken out of this building near the latter part of the winter and a new one will have to be procured to replace it. The steam pipes in the cellar of the main building under the dispensary and the medical storeroom adjoining it were encased in sectional asbestos covering.

Two new sections of grate bars for the fire box of one of the main boilers, grate bars, rings and covers for the kitchen range, and grate bars for the hot-water and small steam boiler in the infectious building were procured.

The old stovepipe in the small infectious pavilion was replaced by a new one.

Considerable painting, varnishing, bronzing, and whitewashing were done thruout the hospital buildings during the year, and a little outside painting was required.

All iron beds, bedside lockers, and chairs were white enameled several times.

Carpenter work of a minor character, in addition to that previously mentioned, such as repairing doors, windows, furniture, leaks in roofs and around windows, taking down and putting up tent frames, storm windows, etc., went on continually.

Eight new white enameled beds and four navy standard tents were added to the hospital's outfit; the latter were put up over wooden frames and platforms and heated with cone-shaped stoves loaned by the Training Station and have been in use since March 15, 1906. These tents have needed frequent repairs on account of the severe winds.

There were 671 patients under treatment during the year, 30 of whom were continued from 1904. Of these 493 were discharged to duty, 28 to other hospitals, 82 from the service, 2 deserted, 11 died, and 55 were continued to 1906.

Naval hospital, New York, N. Y.—The following repairs and improvements were made in the naval hospital, New York, and grounds during the fiscal year ending June 30, 1906: All defective bricks were replaced, the stone coping in front of the steps and retaining walls of the annex building was relaid, and the roof of the front porch was repaired. A Hamilton-Low dish-washing machine was installed. Steam-cooking utensils and copper coffee and tea urns were put in the hospital kitchen and connected with new copper pipes to carry off the waste steam and vapor, and metal ceilings were placed in the kitchen and the two adjoining rooms. A defective waste pipe in the laundry was replaced with heavy pipes and a new foundation was put under the wringer. A heavy galvanized leader was put in the pesthouse. A corroded steam pipe in the conduit leading to the medical director's residence was replaced and a burst water main in the roadway and broken water pipes leading to the stables were repaired. The roofs of all the hospital buildings proper were repaired and thoroly painted. Necessary minor repairs to the plumbing and steam-heating plant and all necessary carpentering, repairing iron, and wood furniture were made. The hospital building annex, small-pox building, and outhouses all received the yearly overhauling, painting, cleaning, and repairing, and are in good condition. A new privet hedge and some trees were planted along the north and west walls inclosing the hospital.

The cemetery was further graded and leveled along the eastern railing and over the graves previously marked with wooden headboards, 55 regulation tombstones received from the Quartermaster's Department, United States Army, were erected. Concrete pavement was laid in the area between the boiler house and the coal shed and the road between the new supply depot and the cemetery gate was relaid by the hospital force. A wooden block roadway and concrete sidewalks and steps with granite curbings and necessary catch basins and drains around the new naval medical supply depot were completed.

Two new houses for medical officers were completed, furnished, and occupied, and the ground around them was graded, terraced, sowed with grass seed, and laid with wooden walks.

With the completion of the new building for the naval medical supply depot the old building formerly used and designated as the naval laboratory is at the disposal of the Bureau for other purposes. It adjoins the naval hospital, is of the same style of architecture, and with the necessary alterations can be used to increase the capacity of the hospital to meet the demands for additional hospital space for several years to come. The Bureau recommends that an appropriation be made effective to adapt the old laboratory building to hospital purposes.

Altho the present hospital is in excellent condition, and, on the whole, modern in appointments and satisfactory in equipment, it is inadequate in capacity to meet fully the present requirements of the service. The annex for infectious diseases is especially open to criticism. It is far too small to permit the proper isolation and safe treatment of several types of infectious disease at the same time. This annex should be enlarged, remodeled, and equipped for the isolation and independent control of the large number of cases of infectious disease which every year require treatment.

During the year 1905 there were in all 941 cases under treatment at this hospital, 131 of which were continued from 1904. The total number of cases was 306 less than for the previous year. The average daily number of patients was 94.79, and the average duration of treatment for each case was 36.76 days. Of the cases treated, 541 were discharged to duty, 29 to other hospitals, 192 were invalided from the service, 11 died, 17 were invalided on leave, 8 were transferred to the Government Hospital for the Insane, 23 deserted, and 120 were continued to 1906.

Naval hospital, Philadelphia, Pa.—The naval station at League Island, Pa., has outgrown the capacity and the equipment of this hospital to provide for its needs. The hospital is old, its design is not in keeping with modern requirements in hospital construction, it lacks conveniences which are essential to a naval hospital, and is not satisfactory for present service demands. The growth of the city in its vicinity has surrounded it with railways and manufacturing establishments. Rubber factories and oil refineries pollute the air with black smoke and nauseating odors, and passing railway trains shake the building with their noise and add to the discomfort and suffering of the sick. In addition to these unfavorable conditions, the location of the hospital has the disadvantages of inaccessibility and remoteness from the receiving ships and barracks, which supply its patients. The distance of the hospital from the navy-yard is so great that the ambulance must make a journey of 14 miles at each round trip, and this entails serious delay and suffering in grave cases. A separate building for the treatment of contagious diseases is urgently needed at this hospital. At present the third floor of the hospital is used for such cases, but it is not available for the purpose in winter, as the heating system does not extend higher than the second floor. As there is no elevator, the third floor can be reached only by passing thru the halls and lower wards, and, in consequence, infection of the occupants of these wards has occurred. While the League Island Navy-Yard is advancing in importance and in its facilities for construction and repair, and while the number of recruits at the receiving ships and barracks is yearly increasing and giving more and more sick to be cared for, the hospital accommodations are the same as they were forty years ago. The necessity for the provision of a new hospital of ample size and modern design is plainly shown by these facts. The Bureau therefore recommends that a site at or near the navy-yard be secured and on it an adequate hospital be constructed, and that the present hospital be then used for the care of the inmates of the Naval Home, the number of which will increase with the strength of the personnel of the Navy.

In addition to the annual repairs to the plumbing and to the steam heating and power plants, other items of expense were incurred for repairs to buildings and grounds, to roofs of engine house and coal shed, and to roof, water spouts, and drain of hospital. The call-bell system was put in good order, and the filters were cleaned, repaired, and refilled. The interior woodwork of the hospital was painted and improved sanitary water-closets were installed in the four main wards.

There were under treatment during the year 654 patients, of which 81 were continued from 1904. Of the total number of patients under treatment, 412 were discharged to duty, 3 to other hospitals, 4 to Government Hospital for Insane, 4 were invalided on sick leave, 61 were discharged for admission with a changed diagnosis, 49 were invalided from service, 4 deserted, 17 died, and 42 were continued to 1906. There were 118 cases of contagious or infectious disease treated during the year.

Naval hospital, Washington, D. C.—In connection with the new hospital at the Naval Medical School, the old hospital will be employed as an annex, especially for infectious diseases, because the insufficiency of the original appropriation made it necessary to omit from the plans of the new hospital one pavilion and an isolation ward. Needed repairs to the building were made during the year. The interior of the hospital was painted and the woodwork varnished. Weather stripping was put on all windows. A hot-water tank in the kitchen was attached to the steam plant to secure a continuous supply of hot water. A large cold-storage plant was installed and resulted in a saving of 50 per cent in ice. The main boiler of the steam-heating plant was thoroly overhauled, retubed, and patched. The rain spouting and part of the roof of the barn were renewed. The cement walks in the grounds, cracked by freezing, were repaired. Wards were arranged in the stable for the isolation of cases of contagious disease and proved very useful. The operating room is antiquated, but with great attention to aseptic methods operations were performed in it with marked freedom from infection and with excellent results.

There were 361 patients under treatment during the year, 30 of which were continued from 1904. Of these 319 were discharged to duty, 4 to other hospitals, 4 to Government hospitals for insane, 18 were invalided from service, 4 deserted, 6 died, and 36 were continued to 1906.

The Naval Medical School hospital, Washington, D. C.—The new hospital structure appropriated for by the Fifty-seventh Congress and erected on an admirable site in the grounds of the Naval Medical School has been completed and will be opened for the reception of patients on October 1, 1906. As originally planned, at an estimated cost of $200,000, the new hospital was of sufficient capacity, but this amount was reduced in the Department to $125,000, and it could not be so completed under the appropriation made by the naval act of March 3, 1903. The Bureau has consequently been obliged to include in its annual estimates the cost of the erection of an addition, symmetrical with the northeast pavilion, solarium, and connecting corridor. It is earnestly recommended that an appropriation be requested of Congress for the construction of this addition, which is considered essential to the completion of the hospital and necessary for its sufficient enlargement to accommodate its quota of patients.

The Department has authorized the designation of the new hospital building as the Naval Medical School hospital.

Naval hospital, Norfolk, Va.—For the renovation of the present hospital building at Norfolk, Va., and the erection of new wards, not to exceed $200,000, $100,000 were appropriated at the last session of Congress. With this appropriation the Bureau hopes to enlarge, remodel, and renovate this hospital as speedily as possible and to adapt it to meet the demands for a base hospital of the first class at Norfolk, growing out of its geographical position and the magnitude of the naval interests in its vicinity.

Repairs to the present old and much-worn building were constantly required during the past year and were made as necessary. An X-ray machine with accessories was installed. A new ice box with a large room for meats, eggs, etc., capable of holding 4 tons of ice, was built outside the house under the first floor veranda, adjacent to the serving room. A small ice box, with a storeroom, was put in the doorway where the old box stood to supply the wards during the night and the immediate necessities of the kitchen. A range with four ovens and four fire pots was installed in the kitchen. The three steam generators were completely overhauled and retubed, a new smokestack was erected over generator No. 3, and the boilers were all connected with the city water supply. A new floor of paving bricks was placed in the boiler house, new steam pipes were laid from the boiler house to the front wing of the hospital, and all steam piping in the drying room of the laundry was renewed. The building was whitewashed twice, and the roof, smokestack, boiler coverings, piping, and interior woodwork were painted. The cemetery was kept in good order, the walls were painted, and the headstones required were set up. With the permission of the Bureau, the Army and Navy Union erected a small monument in the cemetery in memory of their deceased comrades. This monument, a graceful shaft about 9 feet high and surmounted by an urn, was unveiled by the President of the United States on the 30th of May, 1906.

Two residences for junior medical officers, constructed along the drive between the hospital building and the medical director's quarters, were completed and occupied. These houses are handsome in appearance, commodious, and comfortable.

The request of the city engineer of Portsmouth, Va., to lay and maintain a 24-inch sewer for the city of Portsmouth thru the naval hospital grounds was approved by the Department on the recommendation of the Bureau, under such provisions and restrictions as would secure to the Government unembarrassed possession and control of the hospital grounds, without any expense for the construction and maintenance of said sewer, and upon the further condition that the Government reserved the right to make connections at any time with the proposed discharge main for the disposal of the sewage of the naval hospital, and that the grounds should be restored to as good condition as they were in before the work was undertaken.

An iron gateway, a duplicate of the one at Green street, was erected opposite Villa street, and a double driveway of oyster shells, with stone foundations, was built from the main roadway. A gate was built over the new concrete bridge leading to Portsmouth. A riprap was built along a portion of the brick wall in front of the medical director's residence with stone from the foundation of the old stone wall removed from Hospital Point. A substantial dock of the same dimensions as the old one at Hospital Point was erected under the army engineer at the new terminal wall at the foot of Sycamore avenue. The old boathouse was placed on the dock, with the new boat landing near it, in the same relative positions as before. There are now 16 feet of water alongside the front of the new dock at low tide. In digging to make the foundations for the new terminal wall brick masonry was found, which is supposed to be a part of the site of old Fort Nelson. The Bureau has approved the wish of the local chapter of the Daughters of the American Revolution to mark the spot with a marker furnished by the War Department.

There were 1,252 patients under treatment during the year, of which 133 remained from 1904 and 11 were supernumeraries. Of the total number treated, 883 were discharged to duty, 14 to other hospitals, 109 from service, 12 to sick leave, 16 to Government Hospital for Insane, 14 deserted, 13 died, and 180 were continued to 1906. Of the 11 supernumeraries 6 were members of the crew of the Brazilian training ship *Benjamin Constant* and were affected with beriberi. They remained in the hospital twenty-seven days. The lighter cases recovered and the severer cases were able to walk when they were sent to the ship to return to Brazil.

Naval hospital, Port Royal, S. C.—Only minor repairs were made during the year to this hospital. A new floor was laid in the kitchen, the verandas were repaired, new guttering was run around the building, and a new pump was installed. The station at Port Royal, S. C., is admirably suited to meet the needs of the service for a quarantine establishment to stamp out epidemic disease on board ship which has grown beyond the ability of the general hospitals to care for. Instances occur in which it is necessary to vacate ships temporarily in order to disinfect them and free their crews from infection. For this purpose the Port Royal station proved invaluable in the cases of the *Buffalo* and the *Prairie.* In view of the fact that serious epidemics are liable to occur on vessels of the Navy, which can be dealt with properly only at a quarantine station, the Bureau recommends that the Port Royal station be made available for use by the Medical Department of the Navy as a quarantine establishment for the management of epidemics of infectious diseases on naval vessels.

There were under treatment in this hospital 104 patients, of whom 2 remained from 1904. Of these, 92 were discharged to duty, 1 to another hospital, 2 from the service, 1 on leave, and 8 were continued to 1906.

Naval hospital, Pensacola, Fla.—Altho the unsuitableness and inadequacy of the naval hospital, Pensacola, Fla., have been fully set forth in previous reports and the necessity for its improvement and enlargement has been repeatedly urged, the Bureau notes with much regret that recommendations to increase the efficiency of this hospital have failed to secure favorable action. The naval station at Pensacola is growing in importance from year to year and the provision of facilities for the proper care and treatment of the sick should go hand in hand with the increase of the personnel and the extension of naval interests in the Gulf. During the past year, at the time of the presence of the fleet for target practise, the hospital was overtaxed. All available room for the accommodation of patients was used and the porches were occupied by beds. May 27, 1905, it was necessary to crowd 42 patients into a space which can properly accommodate only 32. The primitive nature of the arrangements for the care of these patients was emphasized by the absence of a system of sewerage, of a laundry, of an isolation ward for contagious diseases, of a suitable laboratory for chemical and bacteriological work, of storerooms for the safe-keeping of hospital supplies and provisions, and of facilities for bathing and messing and administration. Owing to these deficiencies the patients are subjected to great discomfort and inconvenience which an ample appropriation from Congress would enable the Bureau to correct. The medical staff of the hospital are compelled to live in unsuitable quarters. The entire hospital establishment is discreditable to the Navy and forces the medical department to work at a very great disadvantage. The Bureau earnestly recommends that Congress be asked to make an appropriation, to be immediately available, for the improvement and enlargement of the present hospital, and also for the construction of two residences—one for the medical officer in command and one for a junior medical officer.

The camp for tuberculosis completed its second year with the close of 1905. The tents now number 27 and accommodate 54 patients. The open-air life at this camp is absolute. The men not only sleep but also eat in the open air. The latter is undesirable because of the inclemency of the weather in winter, which quickly cools the food and renders it unappetizing. A frame dining room, which could be properly heated, would be better for the health of the patients. The food supplies during the past year were satisfactory. The milk is regularly examined and is of fair quality. A special diet kitchen, with a cook experienced in preparing food for the sick, would add greatly to the efficiency of the camp. In order to promote the efficacy of the open-air regimen to which tuberculous patients are subjected an effort is made to employ them for a reasonable amount of out-of-door work under proper supervision. The total number of cases of tuberculosis treated during the year 1905 was 99. The following disposition of these was made: Invalided to another hospital, 1; from service, 28; on leave, 2; died, 7; discharged to duty, well, 21; from service, expiration of enlistment, not cured, 10; continued, 30.

The following repairs and improvements were made to the hospital establishment: The hospital buildings were painted inside and out. All fire grates were reset. The verandas and all plumbing and leaks in roof and gutters were repaired. Sinks and drains were installed in the kitchen and laboratory. The building used as quarters for the hospital corps and the brig were made mosquito proof; wooden covers were placed over cisterns, useless wells were filled up, and four mosquito houses were built, two for each hospital building. Storerooms for the hospital were completed. An additional pump was installed for the water system. Board walks were laid, mosquito screens were renewed and refitted, and a bath house with two shower baths was installed. All outhouses were whitewasht or repainted and the surrounding wall was yellow washt. The road in the hospital inclosure was repaired. A separate latrine was fitted up for the nontubercular patients. A board walk to the beach was completed. A small wharf was built by convalescents. Seven street lamps, obtained from the navy-yard, were put in use about the grounds. During the year 291 patients were under treatment in the hospital, of which 65 remained from 1904. Of the 291 patients, 164 were discharged to duty, 31 to other hospitals, 42 were invalided from the service, 4 on leave, 1 to Government Hospital for the Insane, 2 deserted, 10 died, and 37 were continued to 1906.

Naval hospital, San Juan, P. R.—This hospital has proved invaluable for the medical and surgical treatment of the sick of the vessels serving in the West Indies and of the ships of the Atlantic Fleet during the winter maneuvers. Surgical work has been carried on in its operating room with most excellent results. However, altho its equipment is modern its facilities are crude in many respects and it is recognized as only temporary in character. A larger hospital of better type is desirable for this station, but the necessity for its erection is not immediate. During the year gradual improvement was made in the appearance of the hospital and grounds and in the means for the care of the patients. The main building was reroofed with corrugated galvanized iron and at the same time the roofs of the three adjacent buildings, viz, operating room, mess hall, and water-closet, were painted. The interior of the hospital was painted thruout. The roof of the surgeon's quarters was repaired and painted. A commodious stable and ambulance house, lighted by electricity, was built. The ambulance was made over and painted. Constant attention brought about much improvement in the lawns and roadways and the annoyance caused by the blowing about of loose sand was practically done away with. A cement walk was laid from the Military road to the entrance of the main building. A water meter was purchased and put in at the junction of the hospital system with the city water main. A double range was installed in the kitchen. A new flag pole was erected, painted, and equipped.

During 1905 373 patients were treated, of whom 23 were continued from 1904. There were 290 discharged to duty, 29 to naval hospitals in the United States, 28 were invalided from the service, 6 died, and 20 were continued to 1906. The daily average of patients was 33.25, and the average number of sick days for each was 32.53.

The tents and cots used for the quarantine camp were overhauled and repaired and a cluster of four 32-candlepower incandescent lights was placed on the camp site.

Naval hospital, Sitka, Alaska.—When the old storehouse, which had formerly been used as a hospital, was abandoned on account of its decayed condition, a small frame building was leased for the treatment of the sick of the marine command at Sitka. The lease expires by limitation in November, 1906, and whether the landlord will renew it or not is problematical. The building is conveniently located just across the street from the marine barracks, and is the best obtainable for the purpose. It contains a small room for the surgeon's office, which is also used as an examining room. The dispensary serves as a hall way for entrance into the only ward, and as an operating room, for which it is entirely unsuited. If the landlord refuses to renew the lease of the present hospital building the only way out of the difficulty will be to build a new hospital. Two hundred feet in the rear of the marine barracks is a plat of land owned by the Government and now in the custody of the deputy collector, called the Crows Nest. This land is high, overlooks the bay and the surrounding houses, is easily approached by a gentle slope, and is the best location in the vicinity for a hospital. Its transfer to the Bureau for hospital purposes is recommended. Just opposite the town of Sitka and about 400 yards distant across the channel is Japonski Island, containing nearly 700 acres and belonging to the Navy Department. This island would be an admirable place to construct a small building for contagious diseases, as it is uninhabited.

The inhabitants of Sitka and the surrounding country, including the small town of Killisnoo, are entirely dependent upon the medical officer of the station for medical and surgical treatment. The nearest civilian doctor is at Juneau, 195 miles distant. It is necessary in the interests of humanity to admit serious emergency cases to the naval hospital, and to extend its facilities to enlisted men of the Signal Corps of the Army, of the revenue cutters cruising in Alaskan waters, and of the merchant marine. In the isolated territory of Alaska the relations between the Medical Department of the Navy and the people are practically the same as in the islands of Guam and Tutuila.

During the year 26 patients from the Navy and 16 from other sources were under treatment in the hospital. The daily average of patients was 1.25. There was one death.

Naval hospital, Puget Sound, Washington.—This hospital, a small frame building with a capacity of 16 beds, is inadequate to provide the remote naval station at Puget Sound with satisfactory hospital facilities. Originally built to serve as sick quarters for the navy-yard, it was transferred to the Bureau by the Bureau of Yards and Docks, and for convenience of administration was designated as a hospital. Altho it has since been somewhat improved to adapt it for hospital purposes, it can, at best, be regarded only as a temporary make-shift. Its site is objectionable on account of the noises of the workshops and will soon be required for other uses by the navy-yard. There has been a steady increase in the number of patients admitted to the hospital since it was opened in May, 1903. The total number of patients for 1903 was 89; for 1904, 129, and for 1905, 224. During the summer months, when the ships of the Pacific Squadron go north, the hospital is unable to accommodate all the patients and tents have to be used to house the overflow. A small building was obtained from the department of Yards and Docks for use in isolating cases of infectious disease, and 9 beds were thus added to the 16 beds of the hospital. Objections have been raised, however, to the proximity of this house to the marine barracks. Naval interests at Puget Sound are increasing in importance, and the present insufficient hospital accommodations at this remote naval station should not be overlookt. Upon inquiry it has been learned that an ideal site in the vicinity of the navy-yard, conveniently located and not yet improved, can be secured. The Bureau recommends that provision be made for acquiring this plot of ground and for erecting on it a modern hospital establishment of ample capacity to meet the present and future demands of this growing naval station.

The equipment of the present hospital is modern and within the limits of its capacity it is satisfactory. The small laboratory established during the first year has been of much value to the station as an aid to diagnosis. The local physicians have been encouraged to send specimens from their patients for examination and in this way early diagnosis of contagious diseases in the families of yard workmen may be made and the station can be better protected from infection.

Repairs made during the year were of minor importance and included repairs to the boiler, plastering, range, steam-pipe valves of the heater, and ventilators of the roof. The main building and isolation hospital were completely screened. A hand ambulance was constructed in the yard and a shed for its shelter was built at the rear of the hospital. The exterior of the main building and pesthouse was painted and a coat of glazed paint was given the interior of the operating room.

There were under treatment 236 patients, of which 12 remained from 1905. Of these 205 were discharged to duty, 14 from the service, 1 was invalided on leave, 1 died, and 15 were continued to 19 6.

The only other naval hospital on the Pacific coast of the United States is at Mare Island, Cal. Without more ample facilities at the Puget Sound Station the Department will be unable to provide hospital accommodations for the sick of the Navy on the Pacific coast. Estimates for the erection of suitable hospital building and quarters for the medical officer in command are included in the annual estimates.

Naval hospital, Mare Island, Cal.—The accommodations of this hospital were fully taxed during the year in caring for the sick of the naval stations at Mare Island and San Francisco, of the Pacific Squadron and of the fleet in Asiatic waters who were invalided to the United States. Altho the hospital was completed and occupied in 1900 and is modern in type and appointments the increase in the naval personnel has since been such that its inadequacy in capacity is already manifest. As it is the only hospital of any importance on the Pacific coast and the demands upon it are yearly increasing its accommodations should be ample and extensive, and provisions for increasing its capacity are necessary. The detached building for the care of contagious diseases is too far from the main building and too small for the proper isolation and control of the various forms of infectious disease which often require treatment at the same time. The necessity for increasing the efficiency of the hospital was appreciated by the last Congress, which made an appropriation of $12,000 for a surgical-ward building for surgical cases and an operating room; of $8,000 for a new building for infectious diseases, and of $5,000 for a new power house. When these additions are completed a most desirable and necessary advance will have been made in the facilities of this hospital to meet the present and future demands of the service.

Considerable damage was done to the hospital by the earthquake of the morning of April 18, 1906. The chimneys of the main building were thrown down and their granite tops crashed thru the roof in several places. The plaster in this building was badly cracked in many places and in some of the wards and rooms it was broken from the walls and thrown to the floors. The chimneys were entirely repaired and the damaged roof was restored to its former condition. As an additional precaution against future earthquakes the chimneys were firmly strapped with steel bands, and on account of their great weight the granite tops were not replaced. The damaged plaster was repaired.

When the electric elevator was extended from the second to the third floor the specifications did not include means by which it could be operated from the third floor. This was remedied by placing in position a slate-lined terminal box, switch, etc. The usual minor repairs were made during the year to buildings, pavements, fences, and hospital property of all descriptions. Headstones were placed in position over unmarked graves in the naval cemetery and it was kept in good condition.

Among the more important repairs may be mentioned repairing the cast-iron fronts of the hospital boilers and replacing the grate bars therein, renewing the cast-iron arch over the fire doors, and installing hand-lifting gear for the safety valves. The main kitchen sink was relined with galvanized steel and the drain board replaced. A new laundry stove and hand irons were provided for the laundry, and a new stove placed in the carpenter shop for heating and other purposes. The steam radiators were provided with new valves of an improved pattern and the entire steam-heating system was overhauled and placed in good condition. Five hundred feet of enameled steel conduit for electric wires at the stable were placed in position to guard against danger from fire. The platform of the coal shed was replaced.

There were under treatment in this hospital during the year 849 patients, of which 100 remained from 1904. Of these, 562 were discharged to duty, 20 to other hospitals, 156 from the service, 11 to a hospital for the insane, 11 were invalided on leave, 5 deserted, 9 died, and 75 were continued to 1906.

Naval hospital, Yokohama, Japan.—The absence of our vessels from Japanese waters in consequence of the Russo-Japanese war reduced somewhat the number of cases treated in this hospital during the first half of the year. With the establishment of peace the admissions materially increased. Of the total number under treatment 19 per cent were officers and 65 per cent of these were returned to duty on the station. The facilities and accommodations for the care and treatment of the enlisted personnel are satisfactory, but there is need of a new building, incorporating the offices, mess hall, and sick officers' quarters to replace the old main building, and of a new kitchen. The Bureau has an appropriation for this purpose. A small mortuary building and a detached building for contagious diseases are also necessary.

At the last session of Congress an appropriation of $5,000 was made for the purchase of a lot adjoining the hospital grounds. The acquisition of this lot will provide the much needed space for a mortuary, stable, and servants' quarters.

During the year a complete steam-heating system was installed. The kitchen, mess hall, and the old main building were painted and papered, and these, as well as the quarters of the commanding officer, were rewired for electric lighting in conformity with the new regulations of the Japanese Government. The old detached ward was razed and its site was sown with grass seed for a lawn. A pavilion was built on the mound in the grounds to serve as a smoking room for patients to take the place of the smoking room in the old ward. A coal shed was built in the rear of and adjoining the annex. New servants' quarters were constructed to replace those in the detached ward. The usual minor repairs were made.

During the year there were under treatment 103 patients, of whom 9 remained from 1904. Of these 64 were discharged to duty, 12 to hospitals in the United States, 2 from the service, and 25 were continued to 1906.

Naval hospital, Canacao, P. I.—After occupation for a year, during one wet and one dry season, the Canacao Hospital has fully demonstrated the wisdom of its construction and its admirable fitness for the care of the sick in the climate of Manila. The wide verandas afford space for expanding the bed capacity, without which the hospital would be at times seriously crowded. The verandas are utilized also for the treatment of all tuberculous patients to await transfer home at the earliest moment after the nature of their disease is determined. The reservation is admirably located on a peninsula between Manila Bay and Canacao Bay in the sweep of the prevailing monsoons. No important defects in the hospital have developed. The sewer system is satisfactory, the lavatory accommodations are excellent, and the ample shower baths are particularly refreshing and beneficial to convalescents. The operating establishment is not so large as it should be, but additional space will be obtained by moving from it the X-ray plant to the small annex of the administration building, formerly used as a laboratory. This change will provide a dressing room for venereal and genito-urinary cases and leave two operating rooms for other work.

The hospital has a ward capacity of 100 patients. As this number has been almost constantly exceeded during the past six months, the necessity for additional wards is apparent. The present excellent hospital building is inadequate in size for the proper accommodation of the patients now admitted. As it is the only naval hospital in the Philippine Islands, its enlargement is imperative.

When it is considered that, with the personnel of the Asiatic Fleet and the complement of marines in the Philippines, together with a large civil population entirely dependent on naval hospital facilities, there are approximately 10,000 persons to be provided for, the need of the station for a hospital accommodating at least 200 beds becomes apparent. Estimates have been submitted with the annual estimates for the erection of additional wards and of two residences as quarters for the medical staff. The Bureau earnestly recommends that Congress be asked to make an appropriation, to be immediately available, for the construction of these necessary improvements.

The structural strength of the hospital building was subjected to a severe test in the typhoon of September 26, 1905. The quarters of the junior officers suffered from rain driven thru the ventilating space under the rafter plates and the transoms over the doors. None of the roofing of the hospital, except the galvanized iron roof on the power house, which was partly torn away, suffered any material damage. The paint on the outside of all the buildings was more or less cut off or damaged by the impact of salt water and sand from Canacao Bay and beach. The buildings were repainted as far as practicable during the subsequent dry season. The hospital suffered a serious loss in the uprooting of several large trees and the tearing away of many limbs from those left standing. Provision was made to replace the greater part of the old grove with a more desirable species of acacia and with other good lawn trees. The old buildings for infectious diseases were badly damaged by the typhoon. The smaller building was completely unroofed, the walls were more or less injured, one veranda was destroyed, and one end of the north ward was twisted on its foundations. Repairs necessary for occupation in case of emergency were made.

In the event of extraordinary demands upon the hospital because of active hostilities in the Orient its accommodations could be expanded by the erection of temporary wards of Oregon pine. These emergency wards could be so located that the occupants could use the present lavatories, and no extension of the water and sewer systems would be necessary.

At the last session of Congress an appropriation of $7,000 was made for boring an artesian well at this hospital and providing it with the necessary machinery and appurtenances. It is believed that this will secure the much needed supply of potable water for the hospital establishment. With an abundance of water suitable for drinking and cooking purposes the hospital will be placed in a most satisfactory hygienic and sanitary condition.

The results of professional work in the hospital have been most satisfactory. In 48 abdominal operations performed during year, including 4 operations on the liver and gall bladder, there was not a single death. The number invalided home has diminished. The treatment of syphilis by the hypodermic method and of amoebic dysentery by the administration of ipecac, especially, notes upon which appear elsewhere in this report, has been so successful that patients with these diseases, instead of being invalided home or to the Yokohama Hospital, are retained for treatment and a large percentage are discharged to duty.

Numerous improvements were made during the year. A small laboratory, modern in every respect, was completed, and the hospital is now prepared to do its own bacteriological and chemical work. The construction of a portable and sectional mosquito-proof ward, 10 by 40 by 8 feet in the medical ward, to accommodate 10 patients, was necessitated by the admission of a number of cases of malaria. All windows and doors of the dining room of the junior officers' bungalow were screened; a shed was constructed around the kitchen, and shelving and draining boards were put in the kitchen proper, and 8 large transoms for the open spaces under the eaves and 16 transoms for the open spaces over the doors were put in to prevent the bungalow from being flooded by typhoons. All windows and transoms of the brig were screened. A large locker for liquors and extensive shelving were constructed in the medical storeroom. A cement basin 12 by 12 feet for garbage cans was constructed in the rear of the kitchen, with a drain leading directly to the sewers so that the basin can be washt out each morning after the garbage is removed. Cement walks from the sick officers' quarters to the laboratory and from the bungalow of the commanding officer to that of the junior officers were laid. A system of 4-inch pipes was installed to connect with the tidal salt-water well, and provided with valves to allow the shutting off of the salt water when the fresh-water well is used, and vice versa. This is a most important improvement, as it affords ample fire protection during the dry season. For the same reason and to keep the roads in repair 250 feet of 2-inch galvanized iron pipe with three fire plugs were put in place. In the majority of instances the repairs made were necessitated by the damage done by the great typhoon of 1905, and included extensive repairs to roof and verandas of pesthouse, repairing roofs of hospital buildings, replacing 150 window panes, repairs to water tank and to outside electric wiring and lights, and replacing posts of cemetery fences blown down. The former X-ray room in the operating room was repaired, repainted, and rearranged for use as a genito-urinary dressing room, and the former laboratory was converted into an X-ray and dark room. New sink framings and acid-proof surfaced tables and lockers were placed in the kitchen to replace the former painted wooden furniture. Other minor repairs consisted in repainting the hospital beds and repairing the roads and plumbing.

There were during the year 665 patients under treatment, 54 of which remained from 1904. Of these 367 were discharged to duty, 137 to other hospitals, 42 from the service, 2 deserted, 13 died, and 104 were continued to 1906.

OPERATIVE SURGERY IN NAVAL HOSPITALS.

The increase in the number and importance of surgical operations demanded by the service and performed during the year ending June 30, 1906, is apparent from reports received from hospitals, giving an aggregate of 1,533 for this period. This shows an increase over 1905 of 511 operations, and over 1904 of 780. Of these operations 321 were performed at the naval hospital, Norfolk, Va., 243 at the naval hospital, Canacao, P. I., and 220 at the naval hospital, New York, N. Y.

The following tabular statement shows the number and character of the several operations, viz:

Abscess	179	Laparotomy	9
Adenectomy	192	Ligations	4
Amputations (minor)	24	Laminectomy	2
Amputations (major)	12	Meatomy	14
Ankylosis	3	Necrosis	16
Appendectomy	110	Osteotomy	4
Arthrotomy	15	Nerve stretching	2
Aneurism	2	Nephropexy	1
Aspirations	30	Plastic operations	21
Bronchocele	3	Pterygium	14
Castration	9	Perineal section	2
Circumcision	170	Thoracoplasty	16
Cholecystectomy	1	Tendon suture	4
Cholecystotomy	3	Tonsillectomy	45
Cystotomy	5	Trephining (skull)	3
Enucleation (eye)	1	Trephining (mastoid)	4
Excisions (bones)	11	Tumors and cysts	50
Fractures (ununited)	18	Unguis involutis	26
Fistula in ano	33	Urethrotomy (external)	13
Fistula (intestinal)	1	Urethrotomy (internal)	9
Fistula (urethral)	3	Varicocele	131
Foreign bodies	8	Varicose veins	30
Hemorrhoids	101	Wounds (gunshot)	6
Herniotomy	153		
Hydrocele	16	Total	1,533
Intestinal suture	4		

Statement of the work done by the Record and Pension Division of the Bureau during the fiscal year ending June 30, 1906.

Pension cases remaining on hand June 30, 1905	95
Received during fiscal year ending June 30, 1906	2,141
Answered during fiscal year ending June 30, 1906	2,195
Remaining on hand June 30, 1906	41
Cases for board of medical examiners received and answered	450
Cases for retiring board received and answered	27
Reports of death received	369
Reports of medical survey received and acted upon	2,114
Cases from Civil Service Commission received and answered	98
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	3,568

STATISTICAL REPORT OF THE HEALTH OF THE NAVY AND MARINE CORPS FOR THE YEAR 1905.

The health of the Navy and Marine Corps for the calendar year 1905, as shown by the statistical returns, was good, the ratio of admissions to the sick list per 1,000 of strength being less than for the year 1904 and for the ten preceding years.

The average strength of the active list during the year 1905 was 41,313, which is an increase of 758 over the previous year, the average strength of 1904 being 40,555. Returns were received by the Bureau of Medicine and Surgery from a force of 39,620, the difference, 1,693, representing the crews of small vessels not provided with medical officers, officers and men on leave, and those on special or detailed duty at places from which medical returns in detail are not received. Reports of death are received from the total force, and the figures representing that strength are used in computing ratios of death, but all other ratios are based upon the number shown by the returns of the Medical Department.

The total number of admissions for all causes was 28,321, the ratio per 1,000 of strength being 714.81, as compared with a ratio of 721.88 for the previous year and 788.18 for the ten preceding years. There were 23,565 admissions for disease and 4,756 for injuries, giving ratios of 594.82 and 120.04, respectively. The corresponding ratios for 1904 were 615.21 and 106.67, from which it will be seen that the admissions for diseases and injuries were greater than in 1904.

The daily average of patients was 1,250.12, and the ratio per 1,000 of strength 31.55, being slightly greater than the previous year, when the daily average was 1,235.96 and the ratio per 1,000, 31.34. The total number of sick days was 456,296, or an average of 11.51 sick days for every man in the Navy and Marine Corps, and the average duration of the treatment for each case was 16.11 days. During 1904 the total number of sick days was 452,361, the average per man 11.47, and the average duration of treatment 15.88 days.

The number of persons invalided from the service during the year for disease and injury was 1,201, giving a ratio of 29.07 per 1,000 of strength. The corresponding figures for last year were 1,408 and 34.72, respectively. The ratio for 1905 is lower than that of last year and of the ten preceding years. The discharges for disability include 1,023 for disease and 178 for injury with ratios per 1,000 of strength of 24.76 and 4.38, respectively. The corresponding figures for 1904 were 1,201 and 207, with ratios per 1,000 of strength of 29.61 and 5.15, respectively.

There were 268 deaths during the year, giving a ratio of 6.48, which is slightly greater than that of the previous year (6.06), and less than the average of the ten preceding years (6.63). One hundred and twenty-nine occurred from disease, with a ratio of 3.12, and 139 from injury (including poison), with a ratio of 3.36. Among the causes of admission to the sick list tonsilitis stands first with 2,397 admissions, and gonorrhea with 2,085 admissions stands second.

The diseases causing the largest number of admissions to the sick list stand in the following order: First, tonsilitis, 2,397; second, gonorrhea, 2,085; third, wounds, 1,308; fourth, bronchial affections, 1,032; fifth, malarial diseases, 1,024; sixth, syphilis, 981; seventh, epidemic catarrh, 926, and eighth, rheumatic affections, 924.

Epidemic diseases during 1905, with the exception of mumps, cerebro-spinal meningitis, and scarlet fever decreased considerably, as shown by the following comparison with 1904:

Epidemic diseases.

Disease.	1905.	1904.	Disease.	1905.	1904.
Epidemic catarrh	926	1,059	Rubella	25	122
Measles	121	393	Smallpox	10	15
Mumps	242	219	Cerebro-spinal meningitis	21	10
Diphtheria	143	194	Scarlet fever	52	12

Admissions for tuberculosis, typhoid fever, and pneumonia were 243, 172, and 145, respectively, which is a slight decrease from the admissions for 1904, which were 268, 194, and 156, respectively.

Venereal diseases caused a decided loss of efficiency, with 6,154 admissions, which is an increase of 631 over the admissions for 1904. The admissions for these diseases show only approximately the prevalence of venereal infection in the Navy, owing to the fact that a large number of cases of chancroid and especially of gonorrhea are not admitted to the sick list, and hence are not included in the statistical reports. Venereal diseases give a total of 127,286 sick days, which is equal to the entire loss of the services of 348 men for the year. Admissions for alcoholism were 288 as compared with 260 for the previous year. Admissions for injuries were increased during 1905, amounting to 4,756, with 139 deaths, as compared with 3,759 admissions, with 116 deaths, for 1904.

In comparing these returns with those of the previous year, it is noteworthy that tho the ratio of admissions to the sick list per 1,000 of strength is less than in 1904, the mortality is greater than that of 1904. Among the causes which increased the latter was the disaster on the U. S. S. *Bennington*, which resulted in 66 deaths.

RECRUITING.

The following table shows the record of enlistments and rejections for the year 1905:

Where examined.	Number examined.	Number accepted.	Number rejected.	Color-blind.
Receiving ships:				
Wabash, Boston, Mass	198	168	30	4
Hancock, New York	1,414	985	429	22
Lancaster, Philadelphia, Pa	281	178	103	4
Franklin, Norfolk, Va	632	292	340	35
Independence, Mare Island, Cal	286	224	62	....
Philadelphia, Puget Sound, Wash	290	208	82	9
Total	3,101	2,055	1,046	74
Naval and marine rendezvous:				
Boston, Mass	2,929	1,501	1,428	61
New York, N. Y	2,234	1,373	861	69
Philadelphia, Pa	2,503	997	1,506	57
Washington, D. C	631	368	263	14
San Francisco, Cal	1,240	658	582	8
Baltimore, Md	1,214	524	690	42
Buffalo, N. Y	959	379	580	29
Chicago, Ill	2,649	1,066	1,583	82
St. Louis, Mo. (temporary)	980	584	396	23
Kansas City, Mo. (temporary)	897	387	510	28
Omaha, Nebr. (temporary)	302	178	124	14
Minneapolis, Minn. (temporary)	445	282	163	4
Seattle, Wash. (temporary)	255	179	76	3
Denver, Colo. (temporary)	370	205	165	13
Cincinnati, Ohio (temporary)	645	233	412	53
Annapolis, Md	230	194	36	1
Total	18,483	9,108	9,375	501
Recruiting parties in the field	9,814	5,004	4,810	333
Ships and shore stations other than naval and marine rendezvous and receiving ships	1,907	1,343	564	28
Grand total	33,305	17,510	15,795	936

Number examined	33,305
Number rejected per 1,000 for all causes	471.25
Number rejected per 1,000 for color-blindness	28.10
Number of first examinations	29,765

INSANE OF THE NAVY.

Number of patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1905	157
Admitted during the fiscal year ending June 30, 1906	75
Total	232
Discharged during the fiscal year ending June 30, 1906 (6 died, 44 recovered, 7 improved, 3 unimproved, 1 eloped)	61
Remaining in that institution June 30, 1906	171
Number of patients from the Navy and Marine Corps in the Mendocino State Hospital for the Insane on June 30, 1905	13
Admitted during the fiscal year ending June 30, 1906	7
Total	20
Discharged during the fiscal year ending June 30, 1906 (2 died, 3 recovered, 1 improved, 13 transferred to the Government Hospital for the Insane)	19
Remaining in that institution June 30, 1906	1
Patients under treatment in both institutions June 30, 1906	172

NAVAL HOSPITALS.

SUMMARY FOR THE YEAR 1905.

Cases met with in hospitals appear, as a rule, in the returns from the stations where the disease or injury was contracted. All such cases are indicated in Table XII, page 79, in the column "Readmitted," while diseases or injuries first recorded in hospitals appear in the same table in the column "Admitted," and are regarded as original admissions.

NAVAL HOSPITALS, 1905.

Hospital.	Number of cases under treatment.				Number invalided from service.				Number dead.				Number discharged to duty.				Average number daily under treatment.	Average number of days' treatment per case.	Total number of sick days.
	Remaining from last year.	Admitted during the year.																	
		Diseases.	Injuries.	Total.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.			
Cavite, P. I	54	555	56	665	34	8	42	63.15	13	0	13	19.54	323	44	367	551.88	69.81	38.46	25,481
Chelsea, Mass	45	435	43	523	58	9	67	128.10	3	1	4	7.64	321	24	345	621.41	48.75	33.98	17,774
Mare Island, Cal	100	654	95	849	135	21	156	183.74	8	1	9	10.71	479	83	562	661.95	87.49	37.61	31,937
Newport, R. I	30	586	54	670	72	10	82	122.38	10	1	11	16.41	445	47	492	734.17	55.77	30.38	20,358
New York, N. Y	131	700	110	941	169	23	192	204.03	11	0	11	11.68	476	65	541	574.91	94.79	36.78	34,600
Norfolk, Va	133	973	135	1,241	85	24	109	87.83	12	1	13	10.47	792	91	883	711.52	147.53	43.37	53,830
Pensacola, Fla	65	206	20	291	40	2	42	144.33	10	0	10	34.39	152	12	164	563.57	58.30	73.12	21,280
Philadelphia, Pa	77	455	41	573	46	3	49	85.51	6	1	7	12.21	433	35	468	816.75	38.63	24.74	14,101
Port Royal, S. C	2	99	3	104	2	0	2	18.27	0	0	0	0	89	3	92	884.61	10.18	35.73	8,716
Portsmouth, N. H	17	133	6	156	16	3	19	121.79	0	0	0	0	119	6	125	801.27	14.15	33.12	5,167
Puget Sound, Wash	12	191	33	236	10	4	14	59.32	0	1	1	4.23	178	27	205	868.64	17.89	27.66	6,539
San Juan, P. R	23	306	44	373	19	9	28	75.06	3	3	6	16.08	261	29	290	777.48	33.24	32.53	12,134
Sitka, Alaska	1	18	7	26	0	0	0	0	0	1	1	38.42	17	7	24	923.07	1.25	17.61	458
Washington, D. C	30	330	31	391	17	1	18	46.03	5	1	6	15.08	290	29	319	815.85	31.09	29.02	11,345
Yokohama, Japan	9	86	8	103	1	1	2	19.41	0	0	0	0	56	8	64	631.06	17.44	61.81	6,367

STATISTICAL TABLES.

The following statistical tables give in detail the data on which the statements in this report are based:

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1905.
2. *North Atlantic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1905.
3. *Pacific Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1905.
4. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1905.
5. *Receiving ships.*—Names of ships, average complements, admissions for disease and injury, sick days, average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1905.
6. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1905.
7. *Force afloat.*—General aggregate, 1905.
8. *Force afloat.*—Detailed statement, 1905.
9. *Navy-yards, marine barracks, and other shore stations.*—General aggregate, 1905.
10. *Navy-yards, marine barracks, and other shore stations.* —Detailed statements, 1905.
11. *Naval hospitals.*—General aggregate, 1905.
12. *Naval hospitals.*—Detailed statement, 1905.
13. *Report of vaccination for the year 1905.*
14. *Prevalence of special diseases (relation by scale).*—For the year 1905.
15. *Mortuary record for the year* 1905.
16. *Deaths in the Navy and Marine Corps (relation by scale).*—During the year 1905.

1. *General view of the effects of disease and injury on the Navy and Marine Corps during the year 1905.*

Average strength of the Navy and Marine Corps[a]	41,313
Average strength shown by reports of Medical Department[b]	39,620
Average strength of the force afloat	34,820
Admissions for disease, ashore and afloat	23,565
Ratio per 1,000 of strength	594.82
Ratio per 1,000 for previous year	615.21
Ratio per 1,000 for ten preceding years (1896 to 1905)	649.65
Admissions for injuries, ashore and afloat	4,756
Ratio per 1,000 of strength	120.04
Ratio per 1,000 for previous year	106.67
Ratio per 1,000 for ten preceding years (1896 to 1905)	138.30
Total admissions to sick list during the year	28,321
Ratio per 1,000 of strength	714.81
Ratio per 1,000 for previous year	721.88
Ratio per 1,000 for ten preceding years (1896 to 1905)	788.18
Daily average of patients	1,250.12
Ratio per 1,000 of strength	31.55
Ratio per 1,000 for previous year	31.34
Ratio per 1,000 for ten preceding years (1896 to 1905)	32.55

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[a] Used in computing ratios of deaths and discharges from the service for disability.
[b] Used in computing all ratios except those of deaths and discharges from the service for disability.

Total number of sick days	456,296	
Average for each man of Navy and Marine Corps		11.51
Average for previous year		11.47
Average for ten preceding years (1896 to 1905)		11.72
Average days for each case treated		16.11
Average days for previous year		15.88
Average for ten preceding years (1896 to 1905)		14.62
Discharges from service for disease	1,023	
Ratio per 1,000 of strength		24.76
Ratio per 1,000 for previous year		29.61
Ratio per 1,000 for ten preceding years (1896 to 1905)		25.37
Discharges from service for injury	178	
Ratio per 1,000 of strength		4.38
Ratio per 1,000 for previous year		5.15
Ratio per 1,000 for ten preceding years (1896 to 1905)		4.34
Total discharges for disability	1,201	
Ratio per 1,000 of strength		29.07
Ratio per 1,000 for previous year		34.72
Ratio per 1,000 for ten preceding years (1896 to 1905)		29.70
Deaths from disease	129	
Ratio per 1,000 of strength		3.12
Ratio per 1,000 for previous year		3.21
Ratio per 1,000 for ten preceding years (1896 to 1905)		4.38
Deaths from injury (including poisons)	139	
Ratio per 1,000 of strength		3.36
Ratio per 1,000 for previous year		2.85
Ratio per 1,000 for ten preceding years (1896 to 1905)		2.24
Total deaths from all causes	268	
Ratio per 1,000 of strength		6.48
Ratio per 1,000 for previous year		6.06
Ratio per 1,000 for ten preceding years (1896 to 1905)		6.63

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1905.

2. NORTH ATLANTIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Admissions. Injury.	Admissions. Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Abarenda[a]	52 days	16	14	3	17	1,062.50	32	0.06	3.75	6	....	...
Alabama	Year	682	262	96	358	524.92	2,043	5.59	8.19	48	1	5
Alliance	do	125	106	30	136	1,088.00	935	2.72	21.76	19	0	1
Amphitrite	do	149	109	23	132	885.90	1,147	3.14	21.07	12	0	0
Arkansas	do	215	147	34	181	841.86	1,576	4.31	20.04	13	3	0
Atlanta[a]	127 days	74	20	5	25	337.83	117	.92	12.43	2	0	0
Bancroft[a]	60 days	15	23	3	26	1,733.33	171	2.85	190.00	14	0	0
Brooklyn	Year	588	293	63	356	605.61	2,458	6.73	11.44	39	2	0
Cæsar[a]	302 days	60	37	0	37	616.66	258	.85	14.16	14	0	0
Castine[a]	260 days	107	88	14	102	953.27	589	2.26	21.12	13	0	0
Charleston	75 days	128	138	36	174	1,359.37	707	9.42	73.59	16	0	0
Chattanooga	Year	303	127	29	156	514.85	1,038	2.73	9.01	29	1	2
Cleveland	do	298	248	58	306	1,026.84	2,524	6.91	23.18	27	0	0
Colorado[b]	346 days	691	481	122	603	872.64	3,227	9.32	13.48	96	1	5
Columbia	Year	404	273	59	322	797.02	1,932	5.29	13.09	74	0	1
Culgoa[a]	223 days	119	61	24	85	714.28	417	1.87	15.71	82	0	0
Denver	Year	322	175	47	222	869.44	2,243	6.14	19.06	12	0	0
Des Moines	do	318	123	38	161	506.28	1,432	3.92	12.32	13	1	0
Detroit[a]	213 days	142	85	12	97	683.09	938	4.40	30.98	14	0	0
Dixie[a]	296 days	312	323	70	393	1,259.61	2,677	9.04	28.97	52	0	0
Dolphin	Year	147	71	12	83	564.62	461	1.26	8.57	13	0	1
Don Juan d'Austria[b]	21 days	7	6	1	7	1,000.00	15	.71	101.42	0	0	0
Dubuque[b]	211 days	86	12	7	19	220.93	77	.36	4.18	9	0	0
Eagle	Year	63	61	3	64	1,015.87	266	.72	11.42	13	3	0
Fish Hawk	do	41	13	6	19	463.41	94	.25	6.09	4	0	0
Florida	do	206	119	28	147	713.59	1,145	3.13	15.19	23	0	1
Galveston[b]	319 days	266	107	13	120	451.12	802	2.51	9.43	20	0	0
Glacier[b]	107 days	41	21	10	31	756.10	85	.79	19.26	7	0	0
Gloucester[a]	67 days	10	6	2	8	800.00	89	1.32	132.00	1	0	0
Hartford[a]	264 days	217	111	37	148	682.02	588	2.22	10.23	20	0	0
Hull[a]	90 days	17	7	4	11	647.05	39	.43	25.29	6	0	0
Illinois	Year	650	225	57	282	433.84	2,172	5.95	9.15	56	1	0
Iowa	do	610	432	135	567	929.50	3,261	8.93	14.63	75	0	1
Kearsarge	do	641	237	77	314	490.00	2,047	5.60	8.73	38	2	1
Kentucky	do	631	225	89	314	497.62	2,658	7.28	11.53	34	2	0
Maine	do	758	313	78	391	510.55	2,584	7.07	9.32	85	0	0
Maryland[b]	257 days	495	433	90	523	1,056.56	4,554	17.72	35.79	28	2	0
Massachusetts	Year	566	512	156	668	1,180.21	3,706	10.15	17.93	155	0	1
Mayflower[b]	158 days	75	20	13	33	440.00	153	.96	12.80	5	0	0
Minneapolis	Year	446	241	43	284	636.77	1,512	4.14	9.28	25	1	4
Missouri	do	719	292	96	388	539.63	2,772	7.59	10.55	73	3	1
Monongahela	do	150	113	23	136	906.67	973	2.66	17.73	14	1	3
Nashville[b]	144 days	73	40	11	51	968.63	275	1.90	26.02	6	0	0
Nevada	Year	207	113	30	143	690.82	1,306	3.57	17.24	23	0	0
Newark[a]	251 days	257	236	61	297	1,155.64	1,804	7.18	27.93	24	0	1
Newport	Year	161	86	9	95	590.06	732	2.00	12.42	14	0	1
New York[a]	90 days	131	59	15	74	564.88	447	4.96	37.86	6	0	1
Olympia	Year	502	211	68	279	555.77	2,001	5.48	10.91	9	0	0
Paducah[b]	120 days	43	34	3	37	860.46	167	1.39	32.32	16	0	0
Pennsylvania[b]	297 days	604	398	91	489	809.60	2,887	9.72	16.09	55	4	0
Peoria	Year	37	43	5	48	1,297.26	116	.31	8.37	20	0	0
Prairie[a]	166 days	229	209	12	221	965.06	1,797	10.82	47.24	89	2	0
Scorpion	Year	95	101	13	124	1,305.26	595	1.63	17.15	12	0	0
Severn[c]	127 days	63	21	6	30	476.19	234	1.84	29.20	4	0	0
Southery	Year	360	160	20	180	500.00	851	2.33	6.48	67	8	2
Tacoma	do	328	92	23	115	350.61	1,081	2.96	9.02	22	0	1
Terror[c]	127 days	65	47	20	67	1,030.77	352	2.77	42.61	14	0	0
Texas	Year	493	228	61	289	586.20	2,127	5.82	11.80	42	1	0
Topeka[a]	250 days	176	85	20	105	596.59	706	2.42	13.75	16	0	1
Torpedo Flotilla, Second division.	Year	488	85	13	98	200.82	800	2.19	4.48	39	1	0
Wasp[a]	253 days	37	39	9	48	1,297.30	265	1.04	28.10	7	0	0
West Virginia[b]	811 days	611	667	109	776	1,253.68	5,269	16.94	27.72	75	3	1
Wolverine	Year	86	39	14	53	616.28	611	1.67	19.41	3	0	1
Yankee	do	472	235	40	275	791.49	1,625	4.45	9.42	25	0	3
Yankton[b]	125 days	29	15	5	20	689.65	27	.21	7.24	8	0	0

[a] Put out of commission.

[b] Commissioned.

[c] Commissioned and put out of commission.

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1905—Continued.

3. PACIFIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Adams	Year	233	200	26	226	969.95	2,307	6.32	27.12	3	0	0
Albatross	do	73	27	7	34	465.75	246	.67	9.17	2	0	1
Bennington [a]	273 days	112	80	124	204	182.15	1,795	6.59	58.83	41	0	66
Boston	Year	291	134	36	170	584.19	1,605	4.39	15.08	28	1	3
Buffalo [a]	114 days	152	154	18	172	1,190.78	1,019	8.93	58.75	21	0	0
Celtic [b]	74 days	27	24	5	29	1,074.07	105	1.41	52.22	3	0	0
Chicago	Year	463	295	74	369	796.97	2,433	6.66	14.38	37	1	1
Concord [b]	92 days	40	32	5	37	925.00	129	1.40	35.00	12	0	0
Lawton [b]	253 days	266	138	39	177	665.41	1,463	5.78	21.73	53	0	1
Marblehead	Year	261	99	28	127	486.59	1,203	3.29	12.60	23	1	0
New Orleans [a]	65 days	39	10	6	16	410.25	129	1.98	50.76	2	0	0
Paul Jones	Year	18	18	1	19	1,055.55	107	.29	16.11	8	0	0
Petrel [a]	132 days	46	20	11	31	673.91	311	2.35	51.08	2	0	1
Princeton [b]	233 days	98	24	13	37	377.56	239	1.02	10.40	4	0	1
Solace [a]	285 days	225	164	35	199	884.00	2,481	8.70	38.66	63	0	0
Supply	Year	125	116	16	132	1,056.00	1,420	3.89	31.12	20	0	1
Wyoming [a]	237 days	124	100	19	119	959.67	886	3.73	30.08	10	0	0

4. ASIATIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Baltimore	Year	399	188	43	231	772.57	2,034	5.57	13.96	15	0	2
Cincinnati	do	373	303	68	371	994.63	2,803	7.68	20.59	58	0	0
Elcano	do	117	127	12	139	1,188.03	662	1.81	15.47	14	1	0
Frolic	do	79	35	7	42	531.64	198	.54	6.84	3	0	0
Helena [a]	100 days	47	27	3	30	638.29	113	1.13	24.04	3	0	0
Mohican	Year	168	108	34	142	844.11	1,352	3.70	39.22	10	0	0
Monadnock	do	251	158	41	199	792.83	1,408	3.86	15.37	22	0	0
Ohio	do	796	655	111	766	962.31	6,290	17.23	21.64	60	0	0
Oregon	do	615	417	95	512	832.35	4,137	11.33	18.42	76	0	2
Piscataqua	do	41	26	9	35	853.66	155	.42	10.24	5	1	1
Rainbow	do	460	307	15	322	700.00	1,951	5.34	11.61	58	2	0
Raleigh	do	337	149	30	179	531.15	1,463	4.01	11.89	23	0	1
Ranger [c]	82 days	28	42	4	46	1,642.86	211	2.57	91.78	4	0	0
Torpedo Flotilla, First Division.	Year	399	181	23	204	511.50	1,224	3.35	8.39	41	0	1
Villalobos	do	60	55	10	65	1,066.66	438	1.20	20.00	5	0	0
Wilmington [a]	179 days	56	13	4	17	303.57	131	.73	13.03	1	0	1
Wisconsin	Year	663	602	147	749	1,129.71	4,813	13.18	19.87	42	0	5
Wompatuck	do	40	21	4	25	625.00	317	.86	21.75	4	0	0

5. RECEIVING SHIPS.

Name of ship.	Periods in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Wabash, Boston	Year	392	153	9	162	413.26	132	0.36	0.92	144	8	0
Hancock, New York	do	1,032	464	70	534	517.44	1,656	4.53	4.39	170	11	2
Lancaster, League Island.	do	498	252	42	294	590.34	1,413	3.87	7.77	112	7	2
Franklin, Norfolk	do	1,892	1,597	188	1,785	943.44	6,935	18.00	9.51	368	75	3
Independence, Mare Island.	do	596	127	16	143	239.93	432	1.18	1.98	83	17	2
Philadelphia, Puget Sound.	do	226	131	22	153	676.99	655	1.79	7.92	61	3	1

[a] Put out of commission. [b] Commissioned. [c] Commissioned and put out of commission.

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1905—Continued.

6. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Navy-yards:												
Boston	Year	480	193	17	210	437.50	672	1.84	3.83	78	11	1
Cavite	do	759	385	62	447	588.93	3,885	10.64	14.01	122	7	0
League Island	do	364	369	44	413	1,134.75	1,648	4.51	12.39	97	0	1
Mare Island	do	358	303	59	362	1,011.17	2,884	7.90	22.06	123	36	0
New York	do	454	193	30	223	488.98	1,785	4.89	10.77	46	12	0
Norfolk	do	523	352	68	420	803.05	1,540	4.21	8.05	193	32	1
Pensacola	do	184	99	13	112	608.69	726	1.98	10.76	49	2	0
Portsmouth	do	144	60	7	67	465.27	218	.59	4.09	35	0	0
Puget Sound	do	115	101	26	127	1,104.34	315	.86	7.47	71	1	0
Washington	do	327	265	25	290	886.85	725	1.98	6.05	122	3	0
Marine barracks and camps:												
Camp Elliott	do	207	338	34	372	1,797.10	3,428	9.39	45.36	18	0	1
Culebra	do	83	208	15	223	2,686.74	1.239	3.39	40.84	21	0	0
Olongapo	do	485	497	51	548	1,229.89	3,279	8.98	18.51	40	0	1
Polloc	318 days	27	18	2	20	740.74	99	.31	11.48	0	0	1
Seoule	303 days	25	27	0	27	1,080.00	152	.40	16.40	1	0	0
Washington	Year	277	254	29	283	1,021.66	835	2.45	8.84	141	0	1
Naval stations:												
Academy	do	1,304	946	144	1,090	835.88	7,404	20.28	15.55	21	11	4
Charleston	do	67	67	13	80	1,194.02	610	1.67	24.92	2	3	0
Dry Tortugas	do	25	9	6	15	600.00	38	.10	4.00	0	0	0
Guam	do	150	189	40	229	1,526.66	1,906	5.22	34.80	19	8	2
Hawaii	do	132	50	11	61	462.12	881	2.41	18.25	4	0	1
Indian Head	do	7	4	1	8	1,142.85	235	.64	91.42	1	0	0
Iona Island	do	16	6	1	7	437.50	15	.04	2.50	0	0	0
Key West	do	65	49	8	57	876.92	1,044	2.86	44.00	3	1	1
Midway Islands	do	21	17	2	19	904.76	131	.35	16.66	2	0	0
New Orleans	do	61	27	6	33	540.98	328	.89	14.59	2	1	0
Newport [a]	do	1,704	1,119	184	1,308	764.67	6,387	17.47	10.25	486	55	5
Port Royal	do	70	35	18	53	757.14	275	.75	10.71	19	19	0
San Francisco [b]	do	484	553	81	634	1,309.91	5,576	15.27	31.55	22	22	4
Special duty:												
New York	do	......	4	0	4	....	65	.17	....	1	0	0
Peking	128 days	37	36	2	38	....	255	1.99	....	0	0	0
Philadelphia	Year	......	14	3	17	....	164	.44	....	6	0	0
San Francisco	do	......	10	0	10	....	106	.29	....	0	0	0
Washington	do	......	82	9	91	....	966	2.64	....	8	2	1

[a] Includes Constellation.

[b] Includes Pensacola.

General aggregate, 1905.

7. FORCE AFLOAT.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I.												
Parasites and parasitic diseases	1	424	21	269	174	....	....	....	....	....	8	1,923
Class II.												
General infectious diseases (non-venereal)	56	2,459	234	1,980	766	5	5	....	....	12	31	16,772
Class III.												
Constitutional disorders of nutrition	2	52	8	35	26	....	....	....	....	....	1	670
Class IV.												
Diseases of the nervous system	10	1,277	101	1,122	211	29	4	3	....	7	12	7,202
Class V.												
Diseases of the visual apparatus	10	325	27	240	63	49	....	....	....	....	10	3,262
Class VI.												
Diseases of the auditory apparatus	4	212	19	172	60	2	1	....	....	....	....	988
Class VII.												
Diseases of the olfactory apparatus	....	56	......	47	7	2	....	....	....	....	....	190
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	58	3,250	146	3,017	398	8	....	....	1	4	31	14,362
Subsidiary class 2—Diseases of the circulatory apparatus	7	325	50	211	136	24	....	....	....	4	7	3,700
Subsidiary class 3—Diseases of the respiratory apparatus	26	867	47	801	123	2	....	....	1	1	12	5,459
Class IX.												
Diseases of the motory apparatus	18	539	50	513	77	4	....	....	....	....	8	4,247
Class X.												
Diseases of the cutaneous apparatus	30	1,800	94	1,749	146	1	....	....	....	....	28	13,689
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	70	4,313	490	4,336	907	21	....	....	2	3	104	38,735
Class XII.												
Cysts and new growths	....	41	2	26	16	1	....	....	....	....	....	290
Class XIII.												
Injuries	53	3,373	121	2,937	417	26	1	....	....	104	62	27,891
Class XIV.												
Extraneous bodies	....	9	1	9	1	....	....	....	....	....	....	35
Class XV.												
Poisons	1	352	14	328	30	3	....	....	....	3	3	1,972
Class XVI.												
Feigned diseases	....	4	......	3	1	....	....	....	....	....	....	3
Total	336	20,178	1,425	17,745	3,554	172	11	3	4	138	312	141,390

Detailed statement, 1905.

8. FORCE AFLOAT.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		2		2								15
Pediculus		9		9								10
Pulex penetrans		1		1								10
Scabies	1	870	14	210	172						8	1,578
Tænia		23	6	28	1							148
Tinea favosa		1			1							
Tinea trichophytina		15		15								140
Other diseases of this class		3	1	4								22
CLASS II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		9	3	9	3							75
Catarrhus epidemicus	16	526	12	537	14						3	2,314
Cholera morbus		20		19	1							84
Denguis	2	114	1	111	4						2	881
Diphtheria	11	69	1	2	79							959
Dysenteria acuta		26		17	9							204
Dysenteria chronica		17	9	6	19						1	261
Erysipelas		16	1	7	10							72
Febris cerebro-spinalis		5			5							4
Febris enterica	1	99	6	18	80		2			3	8	1,027
Febris flava		6		1	3					2		111
Febris intermittens		360	79	419	18						2	1,975
Febris pneumonica	4	83	1	27	54					4	3	689
Febris recurrens		4		4								15
Febris remittens	4	150	21	151	20					1	3	1,110
Morbilli	2	92		11	83							175
Neuritis endemica		1			1							3
Parotitis epidemica		208	1	104	104						1	1,004
Pyæmia			2		1						1	64
Rheumatismus articularis acutus	13	239	52	221	75		2				6	2,880
Rheumatismus articularis chronicus		80	23	61	40	1					1	794
Rubella		14		8	6							34
Scarlatina		19			19							9
Septicæmia		2		2								38
Tuberculosis miliaris acuta		1			1							9
Tuberculosis pueumonica acuta		23	4	2	23		1			1		193
Tuberculosis pneumonica chronica	1	84	13	11	80	4				1	2	699
Tuberculosis *of other parts*		5	1	4	2							82
Vaccina		167	4	168							8	847
Varicella		10		6	4							99
Variola	2	7		2	7							51
Other diseases of this class		3		2	1							10
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia	1	26	6	14	19							494
Debilitas senilis		2		1	1							2
Diabetes insipidus	1	3		3	1							80
Diabetes mellitus		4		1	2						1	30
Hæmophilia		2		2								13
Lithæmia		8		6	2					1		51
Purpura hæmorrhagica		1		1								3
Other diseases of this class		6	2	7	1							47
CLASS IV:												
Diseases of the nervous system—												
Apoplexia		5			1					4		5
Cephalalgia	1	37	4	27	15							250
Dementia		25	8	4	23	4		1		1		214
Encephalitis		1	1		2							16
Epilepsia	1	41	15	20	22	18				1	1	431
Febris continua simplex	2	290	9	285	14						2	1,587
Febris ephemera		377	7	378	3						8	1,232
Febris thermica		41	3	44								157

Detailed statement, 1905—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalidated. To hospital.	Invalidated. From service.	Invalidated. On leave.	Invalidated. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Hemicrania		2		2								8
Hemiplegia		2	1		3							18
Insomnia		2	1	1	2							39
Mania		13	4	2	14	1						299
Melancholia	2	34	2	5	28	2		2			1	194
Meningitis		1								1		1
Monoplegia	1	3	1	2	3							90
Myelitis	1				1							59
Nausea marina		47	3	46	2	2						147
Neuralgia		81	1	79	3							376
Neurasthenia		39	11	18	27	1	4					464
Neuritis	1	14	3	11	7							148
Neuritis multiplex		1			1							28
Neurosis hysteroidea		11	3	8	5	1						175
Paranoia		14	7	6	12	2					1	152
Paraplegia	1		1		2							81
Prostratio thermica		97	6	98	2						3	341
Sciatica		24	1	21	4							222
Sclerosis lateralis spastica		2		2								7
Sclerosis spinalis posterior		5	3	2	5	1						68
Syncope		12	1	13								16
Torticollis spasmodica		9		8	1							25
Vertigo		31	3	29	4						1	230
Other diseases of this class		16	2	11	5	2						187
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia	1	19				19					1	341
Amaurosis	1	7	2	4	5	1						145
Amblyopia		13		5	8							106
Asthenopia		3	2	4	1							74
Astigmatismus		9		6	1	2					1	58
Blepharitis		4		3	1							10
Chalazion		4	1	5								19
Choroiditis		3		3								127
Conjunctivitis	2	123	14	126	10	1					2	855
Corneæ ulcus		4	1	3	2							48
Glaucoma		1		1								4
Hordeolus		9	1	10								27
Hypermetropia		1			1							0
Iritis	1	31	1	24	8						1	335
Keratitis		15		12	3							108
Leucoma		1			1							1
Myopia	5	37	2	12	3	25					4	562
Neuritis optica		5	1	1	5							32
Obstructio lacrimalis		1		1								1
Panophthalmitis		2		2								33
Pterygium		16		9	7							197
Retinitis		6	2	4	3						1	106
Trachoma		2		1	1							1
Other diseases of this class		9		5	3	1						82
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		2		2								2
Otalgia		10	1	11								46
Otitis externa	2	46	1	46	2		1					254
Otitis media	2	129	13	96	48							570
Surditas		19	4	13	8	2						105
Other diseases of this class		6		4	2							11
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1		1								4
Rhinitis acuta		42		40	2							151
Rhinitis chronica		8		1	5	2						27
Other diseases of this class		5		5								8

Detailed statement, 1905—Continued.

8. FORCE AFLOAT—Continued.

Diseases	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class VIII—Diseases of the Nutritive Apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		7	1	5	3							56
Ani rhagades		3			3							0
Appendicitis	1	122	17	57	80					1	2	759
Catarrhus gastricus acutus	2	163	5	158	11						1	702
Catarrhus gastricus chronicus		34	8	22	20							256
Catarrhus intestinalis acutus	2	93	2	88	8						1	425
Catarrhus intestinalis chronicus		14	7	7	12	2						140
Cholelithiasis		10		5	4						1	27
Colica		212	5	214	3							554
Constipatio		104	4	103	3						2	369
Dentis caries		8	1	8	1							33
Diarrhœa simplex	1	330	9	331	8						1	1,247
Dyspepsia nervosa		7		5	2							26
Fistula in ano		16	6	8	13	1						223
Gastralgia		15	1	16								88
Glossitis		2		1	1							4
Hæmatemesis		1			1							4
Hæmorrhois	4	149	12	91	71						3	856
Hepatis congestio	1	24		22	2						1	131
Hepatitis acuta		2	2	3	1							23
Hepatitis chronica		2		1	1							6
Hepatitis suppurativa		2	2	2	1					1		8
Hypertrophia tonsillaris		3		1	2							3
Icterus	2	72	5	61	15					1	2	656
Obstructio intestinalis		2			2							3
Odontalgia		6		6								23
Parulis		7		7								16
Periodontitis		6		5	1							17
Periproctitis		1			1							7
Peritonitis		5		2	2					1		15
Pharyngitis	1	68		63	5						1	219
Stomatitis		5	1	4	1						1	27
Tonsillitis	39	1,740	56	1,707	112				1		15	7,285
Ulcus gastricum		1			1							34
Other diseases of this class		14	2	14	2							120
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		4			1					3		9
Angina pectoris		5		1	3	1						39
Arteriosclerosis		1			1							1
Cordis dilatatio		5	1	2	3						1	54
Cordis hypertrophia		1		1								3
Cordis palpitatio	1	64	16	45	30	5					1	694
Cordis valvularum morbus	1	52	10	17	33	12					1	459
Endocarditis		3		1	1					1		31
Myocarditis		2			2							0
Pericarditis		1			1							10
Phlebitis		9		7	1						1	58
Varix	1	31	2	5	24	4					1	192
B—Lymphatics—												
Bronchocele		9	2	4	5	2						69
Lymphadenitis	4	106	15	100	24						1	1,746
Lymphangitis		15	3	15	2						1	115
Other diseases of this class		17	1	13	5							220
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma	1	22	11	23	8	2					1	202
Bronchopneumonitis		20		9	11							137
Bronchitis acuta	10	457	14	445	28				1		7	2,623
Bronchitis chronica		34	4	19	19							341
Catarrhus bronchialis	10	183	3	191	4						1	863
Hæmoptysis		22	2	11	12						1	111
Laryngitis acuta	2	26		27	1							103

Detailed statement, 1905—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary class 3—Diseases of the respiratory apparatus—Cont'd.												
Laryngitis chronica		4	1		5							22
Œdema pulmonalis		1								1		1
Pleuritis acuta	1	83	7	67	23						1	794
Pleuritis chronica	2	10	5	7	9						1	234
Pleuritis purulenta		2			2							12
Other diseases of this class		3		2	1							16
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		5		4		1						32
Arthritis	1	30	6	26	10	1						361
Bursitis		27	1	25	8							295
Caries		1	1	1		1						3
Contractura		6		3	3							33
Myalgia acuta	7	306	22	318	13						4	1,828
Myalgia chronica	1	39	6	30	16							360
Necrosis		5	1	2	4							58
Ostitis	1	2		3								41
Osteomyelitis		6		4	2							133
Periostitis		18		12	5						1	148
Synovitis	2	67	12	62	16						3	716
Thecitis		17		15	2							85
Other diseases of this class	1	10	1	8	3	1						159
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	7	790	89	757	64						15	5,471
Acne		5		2	8							16
Carbunculus	1	54	2	53	2						2	456
Cellulitis	4	157	4	149	14						2	1,471
Clavus		12	2	14								70
Cutis fissuræ		3	2	4							1	39
Ecthyma		8	4	9	3							119
Eczema	4	63	7	53	21							742
Erythema		29		29								125
Furunculus	7	365	18	383	5						2	2,099
Herpes simplex		11		11								49
Herpes zoster		21		20	1							172
Impetigo		9		8	1							79
Lichen		5		4	1							20
Onychia		6		6								47
Paronychia	2	25		27								309
Pemphigus		8	1	9								57
Pernio		1		1								11
Pityriasis		2		2								4
Prurigo		2		2								14
Psoriasis		5		2	3							26
Ulcus	5	128	12	119	22						4	1,690
Unguis involutus		55	2	52	4						1	404
Urticaria		18	1	17	1						1	76
Verruca		10		10								52
Other diseases of this class		8		6	1	1						71
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	18	606	63	513	140	1			1		32	9,672
Arthritis gonorrhoica	8	102	25	78	55	1					1	1,401
Balanitis		35	2	36							1	303
Calculus		3	1	3							1	19
Chancroid	5	458	23	446	35						5	2,463
Cystitis		79	11	63	26						1	1,224
Enuresis		23	2	15	8	1					1	280
Epididymitis	10	304	43	315	31						11	3,625
Fistula urinalis		2			2							10
Gonorrhea	8	1,641	99	1,651	81	2			1		13	5,607

Detailed statement, 1905—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS XI—Continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Hæmaturia		8		8								111
Hydrocele	1	18	4	11	12							137
Nephritis acuta		19	1	10	8					2		99
Nephritis chronica	1	20		6	13					1	1	141
Nephrolithiasis		7	3	10								55
Ophthalmia gonorrhoica		14	1	7	8							186
Orchitis	5	358	37	338	53						9	4,108
Paraphimosis		26		22	2						2	226
Phimosis	1	164	2	139	26						2	1,642
Prostatitis		6	2	5	3							85
Pyelitis		3		1	2							23
Syphilis consecutiva	9	594	140	451	260	13					19	4,809
Syphilis primitiva		116	12	92	32	2					2	742
Urethræ strictura		30	6	18	18							206
Urethritis simplex		4		4								91
Urina suppressa		1			1							2
Urinæ retentio		2		1	1							16
Varicocele	1	101	10	35	75	1					1	981
Verruca acuminata		31	2	24	8						1	77
Other diseases of this class	8	38	1	34	7						1	394
CLASS XII:												
Cysts and new growths—												
Adenoma		2	1		2	1						5
Carcinoma		2			2							18
Chondroma		1		1								2
Cystis		14	1	15								108
Fibroma		4		1	3							39
Lipoma		6		4	2							32
Myxoma		1		1								19
Osteoma		5			5							43
Sarcoma		1			1							2
Other diseases of this class		5		4	1							22
CLASS XIII:												
Injuries—												
Abrasio	1	54	1	56								467
Ambustio ex calore	8	330	10	246	34					64	4	3,174
Ambustio ex frigore		2		2								38
Asphyxia		3			2					1		1
Asphyxia ex submersione		31		1						30		25
Concussio		26		23	3							154
Contusio	11	740	12	729	21	1	1				11	4,453
Deformitas		36	3	12	17	9					1	281
Fames		1	1	1	1							9
Fractura	9	289	13	208	92					3	8	4,811
Fulminis ictus		2	1	2	1							15
Hernia	1	169	36	32	163	11						994
Ictus electricus		2		2								4
Luxatio	1	61	6	59	7	1					1	624
Membranæ tympani ruptio		20	2	19	2	1						67
Membri clades	1	9	1	8	1	2						193
Musculi ruptio		5		3	2							48
Sole excoctus	1	14		15								58
Stremma	6	564	21	558	21						12	4,091
Virium defectio		12		8	4							56
Vulnus contusum	4	154	4	156	4						2	1,116
Vulnus incisum	4	209	1	203	7					1	3	1,448
Vulnus laceratum	5	483	2	459	15						16	4,566
Vulnus punctum		79	4	76	5						2	484
Vulnus sclopeticum	1	56	1	40	11					5	2	500
Other diseases of this class		22	2	19	4	1						219
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		9	1	9	1							35

Detailed statement, 1905—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS XV:												
Poisons—												
Alcoholismus	....	202	6	189	17	....	....	....	....	....	2	700
Dermatitis venenata	....	25	2	24	3	....	....	....	....	....	....	147
Venenum irritans	....	10	1	10	....	....	....	....	....	1	....	67
Venenum neuroticum	....	13	1	7	2	3	....	....	....	2	....	100
Vulnus venenatum	1	94	3	91	6	....	....	....	....	....	1	913
Other diseases of this class	....	8	1	7	2	....	....	....	....	....	....	45
CLASS XVI:												
Feigned diseases—												
Asthesia	....	1	....	1	....	....	....	....	....	....	....	1
Epilepsia	....	1	....	1	....	....	....	....	....	....	....	1
Malingering	....	1	....	1	....	....	....	....	....	....	....	1
Mania	....	1	....	....	1	....	....	....	....	....	....	0
Total	336	20,178	1,425	17,745	3,554	172	11	3	4	138	312	141,390

General aggregate, 1905.

9. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	1	214	10	129	92	....	....	....	....	....	4	1,376
Class II.												
General infectious diseases (nonvenereal)	14	1,595	198	1,336	415	6	9	....	1	2	38	9,895
Class III.												
Constitutional disorders of nutrition	1	41	2	27	16	1	....	....	....	....	....	543
Class IV.												
Diseases of the nervous system	5	474	33	364	108	19	4	....	1	3	13	2,705
Class V.												
Diseases of the visual apparatus	4	140	18	101	27	28	1	....	....	....	....	1,306
Class VI.												
Diseases of the auditory apparatus	2	83	6	53	24	12	....	....	....	....	2	760
Class VII.												
Diseases of the olfactory apparatus	....	44	......	38	4	1	....	....	....	....	1	198
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1— Diseases of the digestive apparatus	31	1,371	64	1,200	235	12	2	....	....	3	14	6,678
Subsidiary class 2— Diseases of the circulatory apparatus	2	167	18	60	59	62	2	....	....	2	2	2,158
Subsidiary class 3— Diseases of the respiratory apparatus	5	420	12	336	80	5	2	....	....	....	14	2,127
Class IX.												
Diseases of the motory apparatus	5	170	10	142	37	4	....	....	....	....	2	1,190
Class X.												
Diseases of the cutaneous apparatus	7	526	21	448	94	....	....	....	1	....	11	4,062
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	22	1,141	97	811	398	26	....	....	....	1	24	9,297
Class XII.												
Cysts and new growths	1	8	1	3	7	....	....	....	....	....	....	30
Class XIII.												
Injuries	10	830	32	680	136	26	1	....	1	13	15	6,633
Class XIV.												
Extraneous bodies	....	5	......	4	1	....	....	....	....	....	....	17
Class XV.												
Poisons	1	187	9	117	20	5	....	....	....	1	4	840
Class XVI.												
Feigned diseases	....	1	......	1	......	....	....	....	....	....	....	1
Total	111	7,367	526	5,850	1,758	207	21	....	4	25	144	49,816

Detailed statement, 1905.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		1		1								3
Pediculus		7		6							1	22
Pulex penetrans		1		1								4
Scabies	1	156	8	84	79						2	891
Tænia		6		6								12
Tinea favosa		1			1							0
Tinea tricnophytina		35	2	29	8							396
Other diseases of this class		7		2	4						1	48
CLASS II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		7		6	1							65
Catarrhus epidemicus	1	390	13	360	38						6	1,454
Cholera		10	1	10	1							52
Cholera morbus		1		1								4
Denguis	1	132	3	129	6				1			649
Diphtheria		57	2	45	14							736
Dysenteria acuta		21	5	16	10							138
Dysenteria chronica		14	5	9	10							166
Erysipelas		5		3	2							76
Febris cerebro-spinalis	1	16		1	15						1	32
Febris enterica	2	35		7	20		9			1		970
Febris flava		6		3	3							25
Febris intermittens	3	359	134	429	59						8	2,163
Febris pneumonica	1	48	2	5	44						2	255
Febris remittens	1	114	11	99	18					1	8	880
Morbilli		27		2	24						1	21
Parotitis epidemica		33		5	28							55
Pyæmia		2		1	1							37
Rabies		2			2							0
Rheumatismus articularis acutus	2	87	10	50	43	1					5	764
Rheumatismus articularis chronicus	2	39	8	35	12	2						357
Rubella		8			8							1
Scarlatina		20	1	1	20							27
Tuberculosis pneumonica acuta		5			5							14
Tuberculosis pneumonica chronica		31	1	4	24	3					1	267
Tuberculosis *of other parts*		2			2							0
Vaccina		107	2	103							6	624
Varicella		15		11	4							62
Other diseases of this class		2		1	1							1
CLASS III:												
Constitutional disorders of nutrition—												
Anemia	1	28		15	13	1						416
Debilitas senilis		2	1	1	2							32
Diabetes mellitus		2		2								3
Hæmophilia		1		1								5
Lithæmia		5	1	5	1							33
Other diseases of this class		3		3								54
CLASS IV:												
Diseases of the nervous system—												
Apoplexia		3			1					2		2
Aphasia		1			1							2
Cephalalgia		59	2	52	7	1	1					120
Chorea		2				2						25
Dementia		11	1	1	7	3					1	100
Epilepsia	1	19	6	6	16	4						182
Febris continua simplex	3	134	5	115	20				1		6	684
Febris ephemera		54	2	51	4						1	201
Febris thermica		12	1	13								58
Hemicrania		1			1							0
Hemiplegia		1			1							0
Insomnia		3		1	2							6
Mania		7	1	2	6							14

Detailed statement, 1905—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Melancholia		3			1	2						44
Monoplegia		3			2	1						19
Neuralgia		40	10	46	4							212
Neurasthenia	1	38	1	20	14	3	3					423
Neuritis		7	1	4	3						1	70
Neuritis multiplex		4		3	1							51
Neurosis hysteroidea		9		4	5							50
Paralysis agitans		1			1							2
Paranoia		1			1							0
Paraplegia		1			1							0
Prostratio thermica		10		9	1							26
Sciatica		6	1	5	2							90
Sclerosis multiplex		1									1	5
Sclerosis spinalis posterior		1		1								6
Syncope		15	1	13	2					1		40
Torticollis spasmodica		1		1								3
Vertigo		15	1	13	1	1					1	51
Other diseases of this class		11		4	3	2					2	224
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		5				5						137
Amaurosis		1			1	1						1
Amblyopia		4		1	2	1						51
Asthenopia		3		2		1						33
Astigmatismus		4		1		3						49
Blepharitis		4		3		1						20
Cataracta		1		1								5
Chalazion		1		1								3
Choroiditis		1		1								2
Conjunctivitis	2	62	8	58	13	1						414
Corneæ ulcus		3	1	3	1							18
Glaucoma		1			1							0
Hordeolus		4		4								12
Hypermetropia		3	1	2	1	1						79
Iritis	2	6	1	7	2							143
Keratitis		3		2	1							30
Myopia		19	2	8	2	11						178
Neuritis optica		1					1					28
Panopthalmitis		2		2								25
Pterygium		6		3	2	1						32
Retinitis		2		1	1							7
Trachoma		2				2						40
Other diseases of this class		2		1	1							4
CLASS VI:												
Diseases of the auditory apparatus—												
Otalgia		7		7								28
Otitis externa		14		12	2							75
Otitis media	1	52	5	29	21	6					2	480
Surditas	1	7	1	3		6						148
Other diseases of this class		3		2	1							29
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1									1	9
Rhinitis acuta		33		33								86
Rhinitis chronica		8		4	3	1						85
Other diseases of this class		2		1	1							
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		1			1							
Ani rhagades		5		4	1							32
Appendicitis		65	11	29	45	1	1					652
Catarrhus gastricus acutus		47	2	42	7							195
Catarrhus gastricus chronicus		19	1	11	7		1				1	20
Catarrhus intestinalis acutus		65		50	15							219
Catarrhus intestinalis chronicus		10	2	4	4	3					1	138

Detailed statement, 1905—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary class 1—Diseases of the digestive apparatus—Cont'd.												
Cholecystitis		1								1		18
Cholelithiasis		2	3	4	1							21
Colica		66	1	55	12							178
Constipatio	1	21		20	1						1	64
Dentis caries	1	27	3	23	3	5						317
Diarrhœa simplex	2	178	11	179	11						1	704
Dyspepsia nervosa		6		4	1	1						46
Fistula in ano		11	2	3	10							58
Gastralgia		7		7								24
Hæmorrhois	1	61	2	33	30	1						435
Hepatis congestio	1	53		53	1							146
Hepatitis acuta		1			1							25
Hepatitis suppurativa		1								1		5
Hypertrophia tonsillaris		3			3							5
Icterus		18	2	13	7							137
Obstructio intestinalis		1		1								2
Odontalgia		4		4								12
Pancreatitis acuta		1								1		1
Parulis		1		1								2
Periodontitis		5		4	1							16
Pharyngitis	1	36	1	36	2							108
Stomatitis		4		4								28
Tonsillitis	23	641	22	612	64						10	2,877
Typhlitis	1					1						0
Uvula descendens		1			1							0
Other diseases of this class		9	1	4	6							14
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		1				1						28
Angina pectoris		1	1	1			1					16
Arteriosclerosis		1		1								1
Cordis dilatatio		3		1	1					1		16
Cordis hypertrophia	1	13	4	7	6	5						181
Cordis palpitatio		23	1	6	5	11	1				1	467
Cordis valvularum morbus		60	2	10	18	34						688
Embolismus		1			1							0
Endocarditis		1	1		1					1		12
Phlebitis		1				1						21
Varix		16	5	6	9	6						245
B—Lymphatics—												
Bronchocele		6		1	4	1						21
Lymphadenitis		29	2	17	11	2					1	333
Lymphangitis	1	5	1	7								46
Other diseases of this class		6	1	3	3	1						83
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma	1	6	1	2	2	3					1	113
Bronchopneumonitis		6		2	3						1	39
Bronchitis acuta	1	129	4	100	28						6	722
Bronchitis chronica		20	3	12	9	1	1					140
Catarrhus bronchialis	3	191	2	174	16						6	719
Hæmoptysis		3		3								13
Laryngitis acuta		23	1	22	2							121
Laryngitis chronica		1		1								7
Pleuritis acuta		35		17	17		1					194
Pleuritis chronica		6	1	3	3	1						59
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		3		1	2							10
Arthritis		11	3	8	5						1	206
Bursitis		5		3	2							17
Caries		1			1							5
Contractura		2		1		1						40
Myalgia acuta	4	92	3	91	8							452

Detailed statement, 1905—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IX—Continued.												
Diseases of the motory apparatus—Continued.												
Myalgia chronica		12	2	8	6							82
Necrosis		1			1							3
Ostitis		1			1							5
Periostitis	1	7	1	6	2	1						93
Synovitis		30	1	23	7						1	208
Thecitis		2			2							6
Other diseases of this class		3		1		2						68
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	2	187	4	148	41				1		3	1,358
Acne		2		1	1							4
Carbunculus		8		7	1							42
Cellulitis	1	28	2	22	8						1	399
Clavus		8	1	8	1							50
Ecthyma		1		1								4
Eczema	1	34	1	26	9						1	300
Erythema		8		4	3						1	29
Furunculus		86	7	88	4						1	414
Herpes simplex		4	1	4	1							36
Herpes zoster		9	1	8	2							117
Impetigo		12		10	2							143
Lichen		3		2	1							13
Paronychia		17		16	1							171
Pemphigus		5	1	5	1							19
Pernio		1		1								6
Pityriasis		2		2								36
Psoriasis		5		3	2							44
Ulcus	3	47	3	44	7						2	501
Unguis involutus		41		35	4						2	309
Urticaria		8		7	1							27
Verruca		3		1	2							6
Other diseases of this class		7		5	2							34
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	6	87	7	54	44						2	1,053
Arthritis gonorrhoica	1	30	3	9	24						1	250
Balanitis		9		7	2							35
Calculus		2			1						1	69
Chancroid	1	79	2	56	23						3	455
Cystitis		14	3	7	6	3					1	150
Enuresis		12	1	4	5	4						102
Epididymitis	2	81	7	64	25						1	846
Fistula urinalis		4	1	3	2							23
Gonorrhœa	6	416	27	388	55	3					3	2,262
Hæmaturia		2		1							1	44
Hydrocele		7	1	4	4							54
Nephritis acuta		5			4						1	65
Nephritis chronica		18	3	6	14					1		104
Ophthalmia gonorrhoica		1			1							0
Orchitis	1	58	4	40	20						3	588
Paraphimosis	1	3		2	2							43
Perinephritis		1	1		2							5
Phimosis	1	28		19	10							221
Prostatitis		5		3	2							66
Spermatorrhœa		1			1							0
Syphilis consecutiva	2	159	33	91	90	10					3	2,260
Syphilis primitiva		22		13	8						1	90
Urethræ strictura	1	22	1	11	10	3						173
Urethritis simplex		2		2								6
Urina suppressa		1		1								9
Urinæ retentio		4	1	3	2							55
Varicocele		57	1	15	38	2					3	237
Verruca acuminata		3		3								16
Other diseases of this class		8	1	5	3	1						66

Detailed statement, 1905—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS XII:												
Cysts and new growths—												
Adenoma		1			1							3
Carcinoma		1			1							0
Chondroma		1			1							1
Cystis	1	1		1	1							2
Fibroma		1			1							4
Lipoma		1			1							0
Osteoma		1			1							1
Sarcoma		1	1	2								19
CLASS XIII:												
Injuries—												
Abrasio		34		32	1						1	192
Ambustio ex calore		27	2	23	5						1	185
Ambustio ex frigore		2			1						1	3
Asphyxia		1		1								1
Asphyxia ex submersione		9		1						8		21
Concussio		10		6	2					2		17
Contusio	1	142	2	131	13						1	868
Deformitas		34	3	10	10	16					1	453
Fractura	2	67	3	49	20				1		2	1,041
Hernia	2	48	1	15	30	5					1	304
Luxatio		26	1	17	10							127
Membri clades		2	5	2	1	4						114
Sole excoctus		2		2								3
Stremma	1	218	8	209	15						3	1,502
Virium defectio		1				1						19
Vulnus contusum		49	1	44	5						1	266
Vulnus incisum		87	2	83	6							219
Vulnus laceratum	2	76	2	66	11						3	681
Vulnus punctum	1	23	2	24	1		1					410
Vulnus sclopeticum	1	19		14	3					3		202
Other diseases of this class		3		1	2							5
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		5		4	1							17
CLASS XV:												
Poisons—												
Alcoholismus	1	82	6	76	12						1	276
Dermatitis venenata		15		12	2						1	103
Venenum irritans		4		3	1							13
Venenum neuroticum		11		5	2	3				1		194
Vulnus venenatum		23	1	20	2						2	186
Other diseases of this class		2	2	1	1	2						68
CLASS XVI:												
Feigned diseases—												
Neurasthenia		1		1								1
Total	111	7,867	526	5,850	1,753	207	21		4	25	144	49,816

General aggregate, 1905.

11. NAVAL HOSPITALS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I.												
Parasites and parasitic diseases	29	15	274	294	......	4	....	....	1	1	18	8,111
Class II.												
General infectious diseases (non-venereal)	134	268	1,293	1,160	158	129	15	....	12	49	172	65,490
Class III.												
Constitutional disorders of nutrition	3	10	47	31	6	15	1	....	....	....	7	2,440
Class IV.												
Diseases of the nervous system	43	44	330	174	36	111	9	50	2	2	33	12,336
Class V.												
Diseases of the visual apparatus	22	16	97	65	6	43	1	....	1	....	19	5,588
Class VI.												
Diseases of the auditory apparatus	7	10	93	50	5	41	....	....	2	....	12	3,505
Class VII.												
Diseases of the olfactory apparatus	3	2	14	13	......	3	2	....	....	....	1	589
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	65	54	656	648	15	24	9	....	2	6	71	21,227
Subsidiary class 2—Diseases of the circulatory apparatus	25	29	201	118	14	92	2	....	1	5	23	8,878
Subsidiary class 3—Diseases of the respiratory apparatus	29	30	205	211	6	23	....	....	2	5	17	8,089
Class IX.												
Diseases of the motory apparatus	19	16	111	92	4	29	1	....	3	....	17	6,052
Class X.												
Diseases of the cutaneous apparatus	31	25	257	239	9	14	1	....	2	1	47	12,341
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	222	200	1,402	1,312	46	171	3	....	21	12	259	79,254
Class XII.												
Cysts and new growths	5	7	21	24	1	5	1	....	....	....	2	1,082
Class XIII.												
Injuries	82	41	586	461	16	107	12	....	6	9	98	28,810
Class XIV.												
Extraneous bodies	....	.....	2	2	......	.....	.....	....	....	....	....	30
Class XV.												
Poisons	10	9	48	47	1	11	....	....	1	2	5	1,318
Total	729	776	5,637	4,941	323	822	57	50	56	92	801	265,090

Detailed statement, 1905.

12. NAVAL HOSPITALS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I:												
Parasites and parasitic diseases—												
Scabies	28	6	257	273		2			1		15	7,052
Tinea favosa			3	3								53
Tinea trichophytina			8	8								283
Trichinosis		1								1		12
Other diseases of this class	1	8	6	10		2					3	711
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis	2	6	6	11	1	1	1					277
Catarrhus epidemicus	2	10	57	68							1	802
Cholera morbus			1	1								16
Denguis		7	9	14							2	209
Diphtheria	1	17	96	112	1					1		4,677
Dysenteria acuta		5	19	14	7	1					2	856
Dysenteria chronica	5	5	49	24	19	1	4		2		9	2,683
Erysipelas		3	13	13	1	1				1		515
Febris cerebro-spinalis			19	2	1	1				9	6	289
Febris enterica	12	38	105	120		3	6		4	6	16	7,220
Febris flava			1	1								57
Febris intermittens	3	9	73	60	2		1		1		21	1,642
Febris pneumonica	13	14	97	101	1	1			1	7	13	3,515
Febris recurrens			2	2								53
Febris remittens	5	10	47	56	2					1	3	1,541
Morbilli	13	2	109	121		2					1	2,399
Parotitis epidemica		1	136	137								1,806
Pyæmia		1								1		0
Rabies			2	1					1			80
Rheumatismus articularis acutus	10	10	130	104	10	17					19	6,605
Rheumatismus articularis chronicus	6	15	50	35	6	20			2	1	7	2,943
Rubella	2	3	14	19								229
Scarlatina	4	13	38	53						2		1,525
Septicæmia	1	2		1						2		603
Tetanus		1		1								43
Tuberculosis miliaris acuta			1	1								24
Tuberculosis pneumonica acuta	1	5	26	10	9	4					9	1,312
Tuberculosis pneumonica chronica	53	83	174	63	97	77	3		1	16	53	22,807
Tuberculosis *of other parts*	1	4	4	2	1						6	358
Varicella		1	9	7							3	223
Variola		3	5	5						2	1	220
Other diseases of this class			1	1								11
Class III:												
Constitutional disorders of nutrition—												
Anemia	1	5	33	23	4	7					5	1,622
Debilitas senilis			4	1	1	2						297
Diabetes insipidus	1	2	1	1		3						141
Diabetes mellitus		3	2	1		2	1				1	150
Hæmophilia			1	1								8
Lithæmia			3	1		1					1	84
Other diseases of this class	1		3	3	1							138
Class IV:												
Diseases of the nervous system—												
Apoplexia		1	2			1					2	190
Aphasia			1	1								19
Cephalalgia		1	22	13	2	6	1				1	701
Chorea	1	1				2						46
Dementia	1	3	31	5	3	8		14		1	4	831
Encephalitis			1			1						1
Epilepsia	6	4	42	10	1	38					2	923
Febris continua simplex	8	2	35	38			1				1	1,131
Febris ephemera		1	7	7			1				1	69
Febris thermica	1			1			1					31
Hemicrania	2	1	5	2		4					1	819

Detailed statement, 1905—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Hemiplegia	2	1	2	......	3	1	....	....	....	....	1	179
Insomnia	.....	......	3	8	......	....	....	....	....	....	....	47
Mania	5	2	22	7	3	4	....	12	....	1	2	•611
Melancholia	6	5	32	9	5	9	....	19	....	....	1	1,075
Meningitis	.....	1	.....	......	......	1	....	....	....	....	....	112
Monoplegia	.....	......	3	2	1	....	....	....	....	....	....	177
Myelitis	.....	......	1	1	......	....	....	....	....	....	....	131
Nausea marina	.....	......	2	......	......	2	....	....	....	....	....	30
Neuralgia	2	2	7	9	......	1	....	....	....	....	1	121
Neurasthenia	5	6	40	24	9	9	5	....	....	....	4	1,726
Neuritis	3	4	12	12	2	4	....	....	....	....	1	799
Neuritis multiplex	1	1	3	4	......	....	....	....	....	....	1	483
Neurosis hysteroidea	.....	2	9	5	......	4	....	....	1	....	1	168
Paralysis agitans	.....	......	1	......	......	....	....	....	....	....	1	207
Paranoia	.....	......	13	2	3	4	....	4	....	....	....	314
Paraplegia	.....	......	3	......	......	1	....	....	1	....	1	125
Prostratio thermica	.....	......	2	2	......	....	....	....	....	....	....	47
Sciatica	1	1	6	4	1	1	....	....	....	....	2	379
Sclerosis lateralis spastica	.....	1	.....	......	......	1	....	....	....	....	....	58
Sclerosis multiplex	.....	1	1	......	......	2	....	....	....	....	....	31
Sclerosis spinalis posterior	1	2	3	2	1	1	....	....	....	....	2	194
Syncope	.....	......	2	2	......	....	....	....	....	....	....	9
Torticollis spasmodica	.....	......	1	1	......	....	....	....	....	....	....	8
Vertigo	2	......	5	5	......	1	....	....	....	....	1	113
Other diseases of this class	1	1	11	3	2	5	....	1	....	....	2	412
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia	.....	......	1	......	......	....	....	....	....	....	1	19
Amaurosis	1	......	3	2	......	2	....	....	....	....	....	167
Amblyopia	6	......	9	3	......	10	....	....	....	....	2	528
Asthenopia	.....	......	1	1	......	....	....	....	....	....	....	26
Astigmatismus	.....	4	1	......	......	5	....	....	....	....	....	119
Blepharitis	.....	......	1	......	......	....	....	....	....	....	1	14
Cataracta	1	......	.....	......	......	1	....	....	....	....	....	82
Conjunctivitis	1	1	24	18	1	4	....	....	....	....	3	1,020
Corneæ ulcus	1	1	5	7	......	....	....	....	....	....	....	214
Glaucoma	.....	1	2	2	......	....	....	....	....	....	1	169
Hypermetropia	1	......	2	......	1	2	....	....	....	....	....	129
Iritis	4	2	11	11	......	3	....	....	1	....	2	979
Keratitis	2	......	4	3	......	2	....	....	....	....	1	171
Leucoma	.....	1	1	2	......	....	....	....	....	....	....	27
Myopia	2	1	4	1	......	6	....	....	....	....	....	184
Neuritis optica	.....	1	6	......	2	3	1	....	....	....	1	313
Pterygium	2	......	10	6	1	1	....	....	....	....	4	600
Retinitis	.....	2	7	4	1	2	....	....	....	....	2	507
Trachoma	1	......	1	2	......	....	....	....	....	....	....	64
Other diseases of this class	.....	2	4	3	......	2	....	....	....	....	1	256
CLASS VI:												
Diseases of the auditory apparatus—												
Otalgia	.....	......	1	1	......	....	....	....	....	....	....	6
Otitis externa	.....	......	7	6	......	1	....	....	....	....	....	175
Otitis media	6	8	73	40	4	33	....	....	1	....	9	2,728
Surditas	.....	2	10	1	1	7	....	....	....	....	3	475
Other diseases of this class	1	......	2	2	......	....	....	....	1	....	....	121
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus	.....	......	3	3	......	....	....	....	....	....	....	56
Rhinitis acuta	.....	......	1	1	......	....	....	....	....	....	....	5
Rhinitis chronica	3	2	10	9	......	3	2	....	....	....	1	528
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Adenitis salivosa	.....	......	4	3	......	....	....	....	....	....	1	202
Ani prolapsio	.....	1	.....	......	......	1	....	....	....	....	....	12

Detailed statement, 1905—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary class 1—Diseases of the digestive apparatus—Cont'd.												
Ani rhagades	1		4	5								105
Appendicitis	14	14	127	120	1	4	5			2	23	7,086
Catarrhus gastricus acutus	1	2	13	14							2	241
Catarrhus gastricus chronicus	6	2	27	24	1	5	1		1		3	1,543
Catarrhus intestinalis acutus			21	18			1				2	403
Catarrhus intestinalis chronicus	3	1	22	21	2	3						728
Cholelithiasis	1		8	6	1	2						226
Colica		1	14	13	1						1	348
Constipatio	1		4	3							2	234
Dentis caries			4	2	1	1						42
Diarrhea simplex	1		21	21	1							422
Dyspepsia nervosa			3	2							1	56
Fistula in ano	5	1	26	26	2	1					3	1,268
Glossitis			1	1								45
Hematemesis	1			1								10
Hemorrhois	9	5	108	106	1	3	1		1		10	3,095
Hepatis congestio		1	3	2	1						1	168
Hepatitis chronica			1							1		137
Hepatitis suppurativa	1	1	1	2						1		34
Hypertrophia tonsilaris			4	3							1	72
Icterus	2	1	24	26			1					748
Obstructio intestinalis		2	3	2	1						2	166
Odontalgia			1	1								1
Periodontitis			2	2								22
Peritonitis			2							2		3
Pharyngitis			7	7								125
Tonsilitis	18	16	179	200		3					10	2,932
Typhlitis			2	2								69
Ulcus gastricum		3	2	1	1						3	162
Uvula descendens			1	1								14
Other diseases of this class	1	3	17	13	1	1					6	523
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma	1	1	2	2		1				1		175
Angina pectoris	1		4	3	1	1						98
Arteriosclerosis			1	1								48
Cordis dilatatio		1	3			1	1			1	1	383
Cordis palpitatio	3	2	20	6	1	12			1	1	4	613
Cordis valvularum morbus	5	16	67	24	10	47				1	6	2,664
Embolismus	1	4	18	6	2	13				1	1	738
Endocarditis		1	2	2		1						121
Myocarditis			1	1								4
Pericarditis			1	1								33
Phlebitis			1	1								39
Varix	3	3	34	28		8					4	1,528
B—Lymphatics—												
Bronchocele	1		8	2		7						250
Lymphadenitis	9		34	38			1				4	1,996
Lymphangitis			1								1	17
Other diseases of this class	1	1	4	3		1					2	176
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma	2	3	15	10	3	5					2	573
Bronchopneumonitis	2	3	13	14						2	2	380
Bronchitis acuta	3	6	53	58							4	1,226
Bronchitis chronica	6	10	27	32		8				2	1	1,324
Catarrhus bronchialis	5	2	22	26	1						2	761
Emphysema pulmonalis	1			1								13
Hemoptysis	1		13	9	2	1			1		1	554
Laryngitis acuta	1		3	3							1	403
Laryngitis chronica			5	4		1						236
Pleuritis acuta	4	2	43	45		2				1	1	1,382

Detailed statement, 1905—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Individual.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class VIII—Diseases of the Nutritive Apparatus—Cont'd.												
Subsidiary class 3—Diseases of the respiratory apparatus—Cont'd.												
Pleuritis chronica	2	1	8	6		4					1	573
Pleuritis purulenta			1	1								4
Pneumothorax		1	2	2							1	261
Other diseases of this class	2	2				2			1		1	399
Class IX:												
Diseases of the motory apparatus—												
Ankylosis	1		2	1		2						148
Arthritis	1	2	15	9	1	6					2	926
Bursitis	2		5	6		1						190
Caries	2	1	1	2		2						178
Contractura		1	3	3		1						152
Myalgia acuta	2	4	17	18		8					2	564
Myalgia chronica	3	1	23	16	1	6	1				3	1,183
Necrosis	2		5	4					1		2	483
Ostitis		1	1	1		1						99
Osteomyelitis	1	1	1	1		2						224
Periostitis	1	1	7	7		1					1	450
Synovitis	4	2	24	17	1	4			2		6	1,115
Thecitis			4	3							1	180
Other diseases of this class		2	3	4	1							160
Class X:												
Diseases of the cutaneous apparatus—												
Abscessus	10	12	113	114	2	8				1	15	4,889
Acne	1		4	4		1						258
Carbunculus			2				1				1	109
Cellulitis	8	1	28	20							7	1,200
Clavus			1			1						98
Ecthyma			3	3								269
Eczema	3	2	36	29	5	2			1		4	1,849
Erythema			4	4								78
Furunculus	2		8	9							1	317
Herpes zoster			3	8								36
Impetigo			3	2							1	48
Lichen			1	1								55
Paronychia			1	1								36
Pemphigus			1	1								19
Pernio		1				1						11
Prurigo		1		1								56
Psoriasis			5	5								74
Ulcus	10	5	31	25	2	5			1		13	2,216
Unguis involutus		1	9	7							3	385
Urticaria		1	2	3								98
Verruca			2	1							1	98
Other diseases of this class	2	1	5	6		1					1	148
Class XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	47	7	203	214	1	2			4		36	11,550
Arthritis gonorrhoica	18	18	90	58	9	39			1		14	5,866
Balanitis			5	5								63
Calculus			11	11								636
Chancroid	6	1	54	52	1	2			1		5	2,551
Cystitis	5	4	30	27		6			1		5	1,254
Enuresis	1	4	14	6		11					2	435
Epididymitis	10	5	60	62		3					10	1,977
Fistula urinalis			2			1					1	136
Gonorrhea	16	28	139	143	2	6			3		29	7,268
Hydrocele	1	3	17	19		1					1	815
Nephritis acuta	2	6	16	11		5				5	3	1,071
Nephritis chronica	3	8	85	17	4	13	2			2	8	1,487
Nephrolithiasis		2	2	3							1	128
Ophthalmia gonorrhoica	3	1	11	8	1	3					3	584
Orchitis	9	6	78	79	1	4			3		6	2,914
Paraphimosis			4	4								283

Detailed statement, 1905—Continued.

12. NAVAL HOSPITALS—Continued.

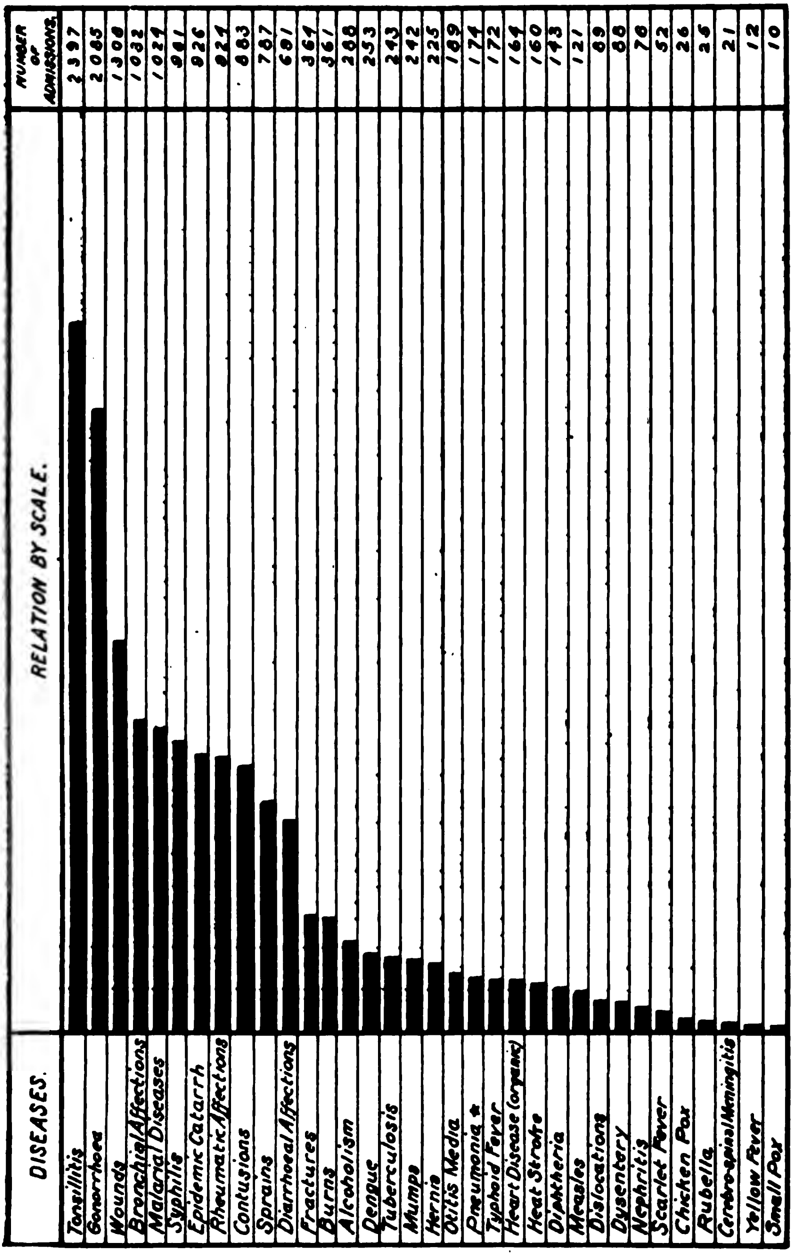
Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS XI—Continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Phimosis	8	2	41	42							9	1,479
Prostatitis	1		3	8	1							140
Pyelitis			2	1		1						144
Spermatorrhea			1	1								18
Syphilis consecutiva	77	87	389	349	22	67			6	5	104	29,669
Syphilis primitiva	8	8	35	39					1		6	2,062
Urethræ strictura	1	5	29	26	2	1					6	1,601
Urina suppressa			1	1								16
Urinæ retentio	1	1	3	4							1	226
Varicocele	9	7	113	115	2	4			1		7	4,387
Verruca acuminata			8	8								188
Other diseases of this class	1	2	6	4		2	1				2	306
CLASS XII:												
Cysts and new growths—												
Adenoma	1		3	3		1						182
Angeioma	1					1						48
Carcinoma		1	1	1			1					24
Chondroma			1	1								7
Cystis	2		1	3								57
Fibroma			4	8							1	77
Lipoma		2	2	4								55
Osteoma			5	8		2						259
Sarcoma		2	1	2		1						136
Other diseases of this class	1	2	3	4	1						1	242
CLASS XIII:												
Injuries—												
Abrasio			1	1								11
Ambustio ex calore	1		40	39							2	1,598
Asphyxia ex submersione			2	1						1		9
Concussio	3		6	7		1				1		164
Contusio	3	1	38	33	1	5	1		1		1	1,417
Deformitas	5	7	33	14		21					10	1,478
Fractura	27	8	122	105	5	15			1	4	27	7,734
Hernia	24	8	194	141	3	42	9		1		30	10,245
Luxatio	2	2	19	11	3	2	1				6	713
Membranæ tympani ruptio	2	1	2	2		3						108
Membri clades		2	4		1	4				1		160
Musculi ruptio		1		1								82
Visceris ruptio			1							1		1
Stremma	6	5	38	35	2	5			1		6	1,591
Virium defectio	1	1	4	4		2						151
Vulnus contusum			9	7		1			1			200
Vulnus incisum	1		15	14							2	430
Vulnus laceratum	4	1	29	25		8					6	1,337
Vulnus punctum	1	1	6	4	1	1					2	321
Vulnus sclopeticum	2	2	15	11		1	1		1	1	4	861
Other diseases of this class		1	8	6		1					2	210
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum			2	2								30
CLASS XV:												
Poisons—												
Alcoholismus	3	4	29	29		2			1	2	2	458
Dermatitis venenata		1	3	2							2	84
Venenum irritans			1	1								3
Venenum neuroticum	4	1	3	3	1	3					1	82
Vulnus venenatum	3	2	8	11		2						561
Other diseases of this class		1	4	1		4						130
Total	729	776	5,637	4,941	323	822	57	50	56	92	801	265,090

13. *Report of vaccination in the Navy and Marine Corps for the year 1905.*[a]

Classification.	Successful.	Unsuccessful.	Percentage of success.
Class 1.—No evidence of vaccination	1,082	1,112	46.19
Class 2.—Evidence of previous vaccination	2,392	8,271	20.39
Class 3.—Evidence of attack of smallpox	11	65	14.10
Total	3,485	9,448	24.62

[a] Includes only cases in which results were determined. Many were undetermined by reason of transfer.

14. *Prevalence of special diseases and injuries in the Navy and Marine Corps during the year 1905.*



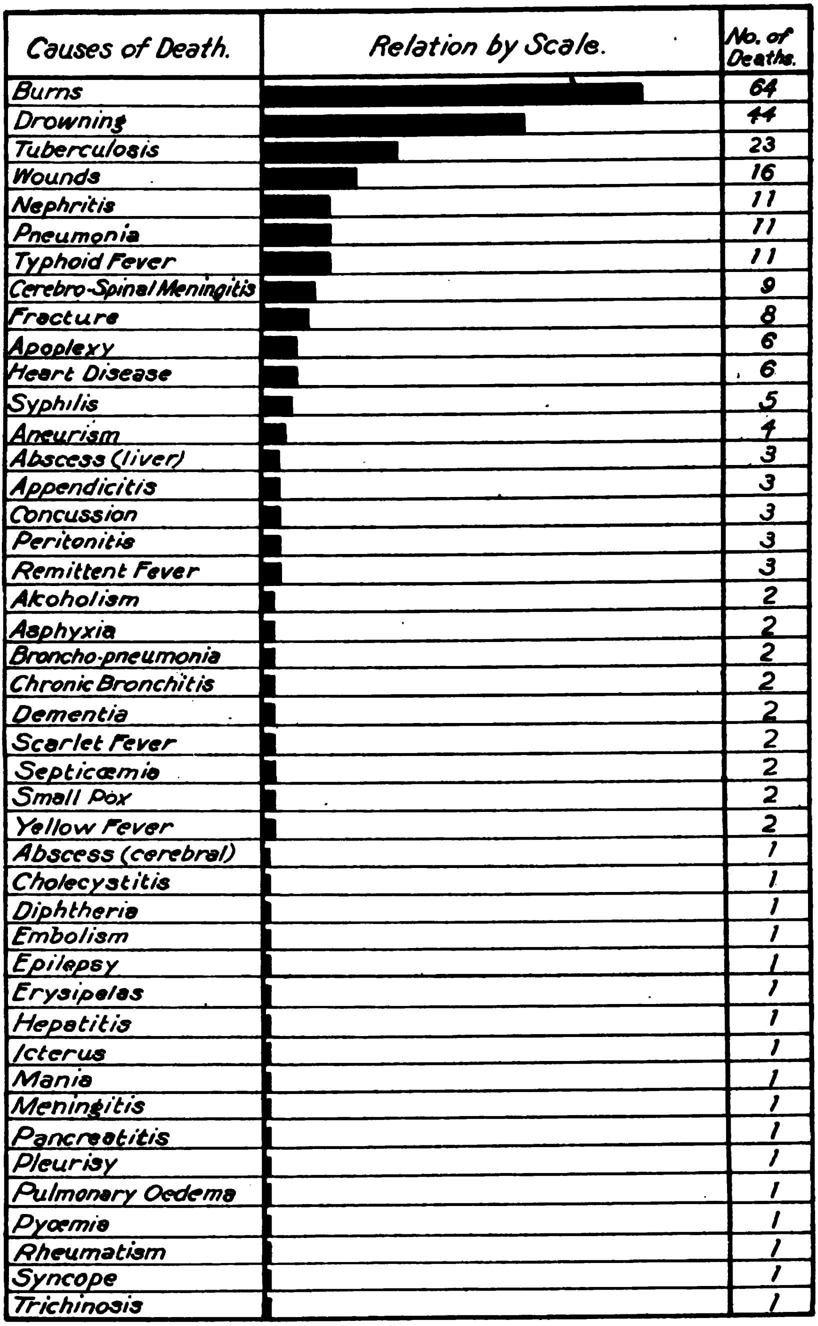
* Broncho-pneumonitis, with 29 admissions, included under this title.

15. *Mortuary record of the Navy and Marine Corps for the year 1905.*

Cause of death.	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.	Average age.
Abscessus	1	....	....	....	1	22.58
Alcoholismus	2	....	....	....	2	21.58
Ambustio ex calore	....	....	64	....	64	25.91
Aneurysma	1	....	3	....	4	31.75
Apoplexia	....	2	4	....	6	34.62
Appendicitis	2	....	1	....	3	29.97
Asphyxia	....	....	1	1	2	29.27
Asphyxia ex submersione	1	8	30	5	44	26.33
Bronchitis chronica	2	....	....	....	2	28.34
Broncho-pneumonitis	2	....	....	....	2	36.04
Cholecystitis	....	1	....	....	1	58.42
Concussio	1	2	....	....	3	23.04
Cordis dilatatio	1	1	....	....	2	58.54
Cordis palpitatio	1	....	....	....	1	21.08
Cordis valvularum morbus	1	....	....	....	1	40.08
Dementia	1	....	1	....	2	41.42
Diphtheria	1	....	....	....	1	19.67
Embolismus	1	....	....	....	1	49.08
Endocarditis	....	1	1	....	2	26.48
Epilepsia	....	....	1	....	1	37.17
Erysipelas	1	....	....	....	1	21.08
Febris cerebro spinalis	9	....	....	....	9	19.42
Febris enterica	6	1	3	1	11	25.87
Febris flava	....	....	2	....	2	24.25
Febris pneumonica	7	....	4	....	11	28.86
Febris remittens	1	1	1	....	3	22.47
Fractura	4	....	3	....	7	27.89
Hepatitis chronica	1	....	....	....	1	56.67
Hepatitis suppurativa	1	1	1	....	3	29.64
Icterus	....	....	1	....	1	25.67
Mania	1	....	....	....	1	34.00
Membri clades	1	....	....	....	1	24.50
Meningitis	....	....	1	....	1	22.25
Nephritis acuta	5	....	2	....	7	31.06
Nephritis chronica	2	1	1	....	4	48.42
Œdema pulmonalis	....	....	1	....	1	24.42
Pancreatitis acuta	....	1	....	....	1	41.00
Peritonitis	2	....	1	....	3	20.56
Pleuritis acuta	1	....	....	....	1	41.83
Pyæmia	1	....	....	....	1	29.00
Rheumatismus articularis acutus	1	....	....	....	1	47.67
Scarlatina	2	....	....	....	2	20.21
Septicæmia	2	....	....	....	2	20.54
Syncope	....	1	....	....	1	22.25
Syphilis consecutiva	5	....	....	....	5	30.85
Trichinosis	1	....	....	....	1	27.34
Tuberculosis pneumonica acuta	....	....	1	....	1	24.25
Tuberculosis pneumonica chronica	16	....	1	5	22	27.53
Variola	2	....	....	....	2	24.21
Venenum irritans	....	....	1	....	1	30.42
Venenum neuroticum	....	1	2	....	3	28.75
Visceris ruptio	1	....	....	....	1	21.41
Vulnus incisum	....	....	1	....	1	24.92
Vulnus sclopeticum	1	3	5	1	10	31.23
Total	92	25	138	13	268	29.69

16. *Deaths in the Navy and Marine Corps during the year 1905.*

[Average strength, 41,313; number of deaths, 268; ratio per 1,000 of strength, 6.4.]



Causes of Death.	Relation by Scale.	No. of Deaths.
Burns		64
Drowning		44
Tuberculosis		23
Wounds		16
Nephritis		11
Pneumonia		11
Typhoid Fever		11
Cerebro-Spinal Meningitis		9
Fracture		8
Apoplexy		6
Heart Disease		6
Syphilis		5
Aneurism		4
Abscess (liver)		3
Appendicitis		3
Concussion		3
Peritonitis		3
Remittent Fever		3
Alcoholism		2
Asphyxia		2
Broncho-pneumonia		2
Chronic Bronchitis		2
Dementia		2
Scarlet Fever		2
Septicæmia		2
Small Pox		2
Yellow Fever		2
Abscess (cerebral)		1
Cholecystitis		1
Diphtheria		1
Embolism		1
Epilepsy		1
Erysipelas		1
Hepatitis		1
Icterus		1
Mania		1
Meningitis		1
Pancreatitis		1
Pleurisy		1
Pulmonary Oedema		1
Pyœmia		1
Rheumatism		1
Syncope		1
Trichinosis		1

EXTRACTS OF REPORTS ON NAVY-YARDS, SHORE STATIONS, AND RECEIVING SHIPS.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, PORTSMOUTH, N. H.

By G. P. Bradley, *Medical Director, U. S. Navy.*

Reporting for duty October 16, 1905, the sanitary condition of the station was found to be good, as the records for the preceding portion of the year and subsequent evidence confirmed.

The general good health is favored by the climatic conditions and by using for drinking purposes only water that is distilled and furnished daily in breakers to the houses from the U. S. S. *Southery*.

The regular supply from Folly Pond and rainwater are in use. The hospital is supplied mainly from the former. Owing to sources of contamination in and about the small pond in the yard where ice is cut, the use of that ice is forbidden for drinking, but it is supplied for refrigerating purposes.

Some improvements were made during the year in the marine barracks, which increased the available space. There is, however, no proper accommodation for the sick as regards separate lodging, attendance, and suitable diet, so that any trifling illness which requires a man to lie in bed even for a day or two makes transfer to hospital necessary. New water-closets at the barracks and at the main gate have been commenced. The improvements at the barracks during the year were as follows:

A two-story brick building with three dormitories was added to the barracks. Plumbing was installed for washhouse and closets in this addition, but bowls, bath tubs, and basins had not been put in at the end of the year, altho all piping and connections were complete. Two of the dormitories are now in use, thus relieving the congestion in the other squad rooms. A new kitchen and bakery, with a capacity for about 200 men, was built in the rear of the barracks.

The water-closet connected with the dry dock, situated in a small brick building near the lower caisson, is insufficient in capacity. A larger one is being constructed in one end of a large storehouse near the upper end of the dock, and is imperatively needed to provide for the crews of vessels in dock.

One wing of the new naval prison has been completed. It is much to be desired that the completion of this building be accomplished; and it is urgently recommended that suitable sick quarters be provided where prisoners not seriously nor permanently ill can be treated.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, BOSTON, MASS.

By E. Z. Derr, *Medical Inspector, U. S. Navy.*

The average complement of officers, marines, and prisoners at this yard for the past year was 480.

There were 210 admissions and readmissions; 672 sick days, with a daily average of 1.84 and a percentage of sick of 0.38; 78 cases were transferred to the naval hospital, Chelsea, Mass.; 11 were invalided from the service, and 1 died of apoplexia.

The marine recruiting rendezvous in Boston was reopened in September and since that time no recruiting has been done at this yard.

The new dispensary was occupied in October and fills all the requirements of the medical department.

The marine barracks are kept in good condition as to cleanliness, but the ventilation, as has been pointed out in previous reports, is very defective, and the whole structure needs renovating. The building is usually overcrowded.

During the year a small brick building for water-closet purposes was erected for the use of crews of ships in dry dock. The accommodations afforded are inadequate, consisting of a urinal trough and 16 water-closet seats. No provision was made for washing clothes and bathing. It has been recommended that building No. 23 be used for this purpose; that a number of stationary wash tubs and shower baths be installed, and the remaining space be used for additional water-closets and urinals.

In view of the large number of men on the battle ships and first-class cruisers which come to the yard, it is important that ample lavatory accommodations be provided.

The prison is kept in excellent condition, and the health of the prisoners has been good.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, NEW YORK.

By E. H. Green, *Medical Inspector, U. S. Navy.*

During the year an average force of 5,000 men was employed in the yard and 75 officers were attached to it on duty. Among the employees, 1,753 were treated at the dispensary in the yard, an average of 5.5 cases for each working day, of which 4 died, and 28 were seriously hurt and sent to a civil hospital after receiving first treatment at the dispensary. The number of casualties was less than the preceding year; during that year there were 2,127 cases, or an average of 6.9 for each working day. This can be explained, possibly, by the fact that in 1904 the battle ship *Connecticut* was then in the launching ways and the work on her was more hazardous. The health of officers and families attached to the yard was very good, and the sanitary condition of the yard was good. An effort was made to build an abattoir on the Wallabout Canal, just at the foot of the hospital grounds. A previous effort to locate the abattoir in Wallabout on Clinton avenue had been thwarted; then the parties obtained a site on the Wallabout Canal, and on it proposed to put up their slaughterhouse. Acting under the orders of the commandant, a board of medical officers called on the health officer of New York and afterwards on the mayor of the city, and protested strongly, on sanitary grounds, against granting permission to erect a slaughterhouse in such close proximity to the naval hospital and the navy-yard. The permit has not as yet been granted and the question is still in abeyance.

The sanitary condition of the marine barracks has been good; they are well lighted and heated and the lavatories are kept clean.

The average percentage of sick was 1.08.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, LEAGUE ISLAND, PA

By L. W. Spratling, *Surgeon, U. S. Navy.*

The medical records show that this yard has been free of serious outbreaks of disease during the year 1905. The one case of typhoid fever reported was that of an officer attached to the yard, but living in Philadelphia. During the first quarter there were 38 admissions and 5 readmissions with epidemic catarrh. For the year there were 22 admissions and readmissions for malaria. These cases were all imported, mostly from the Isthmus of Panama, and the attacks here were recurrences.

Venereal diseases furnished 75 cases during the year; 30 of these were sent to hospital.

For febris pneumonica, otitis media, tonsillitis, laryngitis, bronchitis acuta, catarrhus bronchialis, pleuritis acuta, and bronchopneumonitis there were 103 admissions, 9 readmissions, and 15 transfers to hospital. Generally speaking, these are the diseases incident to barrack life, and principally due to defective ventilation. Attention has repeatedly been called by the medical officers of the yard to this lack of ventilation in the barracks. About December 1 it was noted that the number of cases of tonsillitis showed a decided increase. Investigation developed the fact that at night the fires were banked and all doors and windows tightly closed. The air space per man was approximately 300 cubic feet, with no chance of renewal during the night. Upon being brought to the attention of the commanding officer the condition was remedied, and the cases rapidly decreased.

The barracks and other parts of the yard are now adequately supplied with artesian water. This water is potable, tho generally not palatable. It contains 13+ grains of sodium chloride to the gallon. During the year there were treated at the dispensary 331 surgical and 36 medical cases among the civil employees.

The filling and grading of the island have continued, and apparently the breeding grounds for mosquitoes in the yard will not be extensive during the summer months.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, WASHINGTON, D. C.

By P. Fitzsimons, *Medical Director, U. S. Navy.*

. The yard is a model of neatness and its sanitary conditions are good except in the quarters for marines. These defects were fully described in the sanitary report of last year.

The health of the station during the year was excellent. Of the total of 3,900 civil employees, 1,078 received first aid at the dispensary. Severe injuries were remarkably few. Most of the accidents were trivial injuries to the hands and fingers of the older men from carelessness; 482 men were examined for enlistment and 227 were rejected physically.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, NORFOLK, VA.

By S. H. Dickson, *Medical Inspector, U. S. Navy.*

The sanitary condition of this most important Government yard is far from satisfactory. The deplorable neglect of substantial sanitary measures is a matter of common report and observation and acknowledged by those in charge, who are, however, helpless in the face of lack of funds to carry out improvements. The crying necessities for the health and comfort of the yard are proper paving of its streets and water front, solid reconstruction of its crumbling sea wall, and an efficient drainage system. Every practicable portion of the yard should be paved, either with brick or cement, which seem to wear well, or with Belgian blocks, and no street or thorofare should be suffered to exist, as at present, as a highway deep in mud or black muck which is constantly stirred up by the passage of heavily laden carts and wagons. Such ways are unsightly to the eye and prejudicial to health. A firm and hard roadway is a sine qua non in a climate like this, where the winter season is one of frequent rains and quickly melting snows, and where the long, hot, and dry summer with high winds converts the ever present mud of the cold weather into clouds of penetrating and pungent, germ-laden dust inimical to health and destructive to property. It is true that some of the streets are well paved, but their neat and cleanly appearance serves to bring out in bold relief the insanitary condition of those not so favored. Over the latter, too, the great bulk of traffic seems to pass. Gutters become choked and no adequate provision can be made for carrying off the superflous water, which collects in pools and puddles, until evaporation or slow subsidence into the soil relieves he unwholesome situation. An ever pervading condition of dampness or of dust ensues, tending to produce many and serious disturbances of the respiratory tract among those temporarily or permanently exposed. I beg to lay stress upon this matter, as I deem it of great sanitary importance.

A great hindrance to the efficient sanitary policing of these roadways and streets consists in their being made a place of deposit for every variety of material for which no other place can be found. Great piles of lumber, sand, stone, old boilers, heaps of scrap-iron, boxes, and a variety of other things, even large barges in process of construction obstruct the streets, gutters, and sidewalks. This is due to the fact that the yard has not increased in size in proportion to the amount of work required of it. The acquisition of the adjoining Schmoele tract will greatly relieve this congestion, and it is much to be desired, in the interest of sanitation as well as for the additional working capacity it will give, that immediate appropriation for its utilization be forthcoming.

Many of the buildings in the yard are old and unfit for their purposes from a sanitary point of view. This is notably the case with the building containing the main entrance and forming the greater part of the north wall and now used for administration offices, the marine guardroom, prison, boiler room, storeroom, etc. This building is insanitary from great age and should be replaced by a new structure with all modern sanitary appliances. The prison aforesaid was condemned as a menace to health by reason of its bad ventilation and drainage. Suggested alterations looking to its betterment are near completion; but when rendered fit for use its location is far from desirable. The guardroom, as well, is dark, ill ventilated, and insanitary.

Work on one section of the new marine barracks on the Schmoele tract proceeds steadily to completion and it is hoped that they will be ready for occupancy in the fall of the current year, as the present barracks are totally unfit for use from every hygienic view point, being badly built, insanitary, and even unsafe.

The very primitive method of transporting cistern water for drinking purposes thruout the yard, including the dispensary but not the officers' quarters, by means of cask carts, is still in vogue. Such an antiquated system is unhygienic. The water, pure at its point of supply, is very apt to become contaminated by so much handling in its distribution. The amount is quite sufficient for drinking, as the roofage area collects it in good quantity. If another cistern is added to those now existing the amount will suffice for other purposes. An appropriation should be made for a standpipe, so that the supply could be drawn directly from taps and the objectionable carrying feature eliminated. Consideration is being given, I am informed, to the introduction of driven wells at suitable places, thus insuring an abundant supply not dependent upon rainfalls which might fail at certain seasons; but, even with potable water from these, the standpipe will be necessary.

The health of the yard in 1905, judging from the greatly increased number of admissions, was not so satisfactory as in the preceding year. There were 421 admissions and readmissions in 1905, as against 111 in 1904, with approximately the same personnel.

The emergency work among the civil employees is considerable and they receive every care and attention. Such cases as are deemed important are recorded and of these there were 170. Many minor accidents and ailments besides were given first aid.

EXTRACT OF REPORT ON THE NAVY-YARD, CHARLESTON, S. C.

By E. THOMPSON, *Surgeon U. S. Navy.*

Relative to the sanitary condition of this yard for the past year, little of importance can be recorded. The yard is in a constructive stage and is mainly in the hands of civilian contractors. The naval establishment consists of a small company of marines and a few officers. The health of all has been good during the year and the work done at the yard is continually improving its sanitary condition. As fast as possible a drainage system is being established and low places are being filled in. The marines are housed in temporary buildings on the hospital reservation and the temporary sick quarters built by the Marine Corps has answered all purposes.

A number of the sick from the Coast Squadron have been sent to the naval hospital at Port Royal during this winter. If this port is to be constantly visited by naval ships a hospital will be needed here. At the present time, a yard dispensary building is more urgently needed, as both the naval and civil personnel will constantly increase with a relative augmentation of the work of the Medical and Hospital Corps,

The site in the yard reserved for the naval hospital is very good. It is high land and is covered with a virgin forest of pine and oak. It is a healthy, as well as a beautiful spot.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, PENSACOLA, FLA.

By F. W. F. WIEBER, *Surgeon, U. S. Navy.*

No changes have been made in the navy-yard during the past year as regards sewage disposal or the water supply.

No epidemics have occurred among the complement of the yard. which averaged 178 for the year, nor among the population of Warrington or Woolsey.

Sporadic cases of typhoid fever have been seen on the station and two deaths from that disease in Warrington have come to my notice.

Yellow fever was epidemic in Pensacola during the latter part of the year.

The disease can undoubtedly be traced to infection from New Orleans. The First cases occurred soon after the return of an excursion party from Pensacola, and just before New Orleans declared quarantine, about the 20th of July. Several suspicious cases of fever and deaths occurred in Pensacola soon after that date, but the disease was not declared epidemic there until the last days in August. By that time new cases occurred daily, and the number gradually increased until 32 new cases were reported on October 10. With the advent of cool weather the epidemic quickly subsided and came to an end on October 28.

The disease was at first limited to certain houses in a small district. For a while it looked as if it could be controlled, and but for the opposition the sanitary force met with in their efforts to stop the infection this result would probably have been attained. As usual, however, the diagnosis was doubted, mild cases were not reported, sick people did not take to their beds, but continued to infect mosquitoes and the epidemic ensued.

Later, after the better class of citizens had been aroused to the importance of strict action, and after State funds had been placed at the disposal of the State health officers, who had arrived in Pensacola in August, systematic steps were taken to enforce the quarantine of the sick and to secure the thoro disinfection of infected houses, but by this time the city of Pensacola had become so generally infected that proper disinfection meant the fumigation of every house in the city. This was done, and with the assistance of the cold weather soon put an end to the epidemic. Isolated cases occurred for a short time after quarantine had been removed, but finally even these ceased.

At the naval reservation the following sanitary measures were adopted:

As soon as yellow fever was announced in town, all liberty was stopt.

All navy-yard employees from Pensacola, who did not want to move to the reservation immediately, were discharged.

Pickets were stationed all about the reservation to prevent the entrance of unauthorized persons. All communication with Pensacola was stopt, with the exception of one tug and one flat-car train per day, which brought necessary provisions.

All persons coming to the reservation were placed in five days' detention in a mosquito house, which had been placed in the dispensary.

To guard against an outbreak of fever among the men who had just moved to the reservation, every case of absence from muster on the part of the workmen was investigated; if sick, they were seen by the medical officer, to determine the nature of the illness. All cases of sickness among the inhabitants in Warrington and Woolsey were also investigated by the medical officer.

One house-to-house inspection was made during the first week of the quarantine by Pharmacist Waggener; later every house was inspected once a week by members of a sanitary committee composed of citizens of the two places, the commandant, the medical officer of the station, and Pharmacist Waggener. This committee held daily meetings.

The propagation of mosquitoes was counteracted by appropriate means.

As a result of the quarantine no cases of yellow fever happened on the reservation.

The quarantine was raised officially on November 23.

In the absence of a sufficient police force on the reservation, and from the lack of laws by which proper sanitation could be enforced, it is almost impossible to counteract insanitary conditions in Warrington and Woolsey; and inasmuch as the condition of these towns reacts on the navy-yard, a satisfactory sanitary state of the reservation can not be accomplished under present conditions.

The following are the most glaring needs of the inhabited parts of the reservation outside the navy-yard:

Better streets, surface drainage, sewerage, and water supply.

The woods about the town are littered with empty cans, rain water is stored in all sorts of containers, which are not protected against mosquitoes, shallow cesspools are everywhere, drainage is defective and difficult, and surface water is used in many households. Adding to this the shiftlessness of the greater part of the population, it is fortunate that no infected mosquitoes invaded the reservation.

Inside the navy-yard, of course, conditions were much more favorable, but even here, under the very eyes of the officers, insanitary conditions were found at times which called for instant action. It is hoped that a sewerage system may be installed in the near future and an ample water supply may be procured.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, PUGET SOUND, WASHINGTON.

By D. N. CARPENTER, *Surgeon, U. S. Navy.*

The quarters for the commissioned and warrant officers are well drained and sanitary. The marine barracks are in good hygienic condition, but somewhat overcrowded. The bad effects of this are partly relieved, however, by the constant absence of a number of the men on guard.

The water supply of the yard was carefully watched by weekly examinations. The situation of the shallow well supplying the yard, close to the neighboring town of Bremerton, renders it liable to contamination, as part of the town is built on the same slope this well apparently drains, and the houses are without a sewer system. The analyses have shown, however, no evidence of fresh nitrogenous contamination. The occasional increase in chlorides has been thought to be due to a back seepage of water from the Sound or to an accidental introduction of salt water into the mains. A bacteriological examination gave no evidence of the presence of intestinal bacteria. The well itself is 25 feet in depth and 50 feet in diameter. Water from it is pumped to two standpipes, 30 by 40 feet, on the hill back of the officers' quarters. Each standpipe has a capacity of 200,000 gallons. The amount of water daily used, from 150,000 to 200,000 gallons, necessitates much pumping and causes a rapid circulation of the water, which, of itself, tends to decrease the danger of contamination. Such a well, however, is not a desirable source of water supply.

The number of accidents to yard workmen during the year seems out of proportion to the few men employed. These injuries were as follows: Wounds, 74; contusions and abrasions, 42; foreign bodies in the eyes, steel and emery, 22; fractures, 11; dislocations, 1; sprains, 2; ruptured muscles, 2; amputation of fingers, 1. Besides these injuries, several medical cases were treated in the hospital, including one of hemiplegia from cerebral apoplexy, and other cases were cared for until they were in a condition to be removed. Such care is necessary at this yard as there is no civil hospital nearer than Seattle.

Examinations of apprentices and laborers, which are required before registration, were made thruout the year for the board of labor.

EXTRACT OF REPORT ON THE UNITED STATES NAVY-YARD, MARE ISLAND, CAL.

By F. ANDERSON, *Medical Inspector, U. S. Navy.*

The medical records indicate that the health of the yard and station has been good. No disease has prevailed in an epidemic form and I know of no cases of illness that could be attributed to unfavorable sanitary conditions.

A fatal case of trichinosis recently developed in a marine who had a few weeks previously returned from the Philippines. The exact source of infection in this case could not be determined. It happened that about the time he became infected some hogs belonging to the marine mess were killed and eaten by the men. A few days later a number of cases of intestinal disturbance occurred in the garrison. The men had also been in the habit of eating sausages and pork obtained from outside, and the hogs were fed upon the refuse from the kitchen. Whether the man and the hogs became infected at about the same time and from the same source or whether the man was infected from the hogs it is impossible to say, but this latter solution of the question is probably the correct one. An examination of other hogs of this pen showed that some of them were infected with trichinæ. In order to avoid the danger of a spread of the disease the whole herd was killed and cremated. The pen was burned down and the ground of the pen inclosure burned over with straw and kerosene. No further cases of the disease have been observed.

There have been no changes in the yard during the past year that require discussion from a sanitary standpoint.

In the immediate rear of the medical supply depot a large building slip is being constructed which has necessitated extensive excavating and grading, extending to the foundation of the depot building. The construction of a vessel in this slip will render it almost impossible to carry on work in the depot on account of the shutting off of light and the unbearable noise of the riveting machines.

The yard dispensary has furnished aid in a large number of accident cases during the past year. There were 869 accident cases requiring first-aid dressings. Of these accidents 22 were of a serious nature. Only one death occurred in the yard, but in another instance the man died after removal to his home.

Because of the distance of the hospital from the dispensary and shops and of the requirements of its service, dependence upon the hospital ambulance for the removal of accident cases may involve serious delay. An ambulance attached to the medical department for immediate call during working hours in the shops is strongly recommended for this yard. The ambulance service would be made still more complete if at least three hand ambulances were stationed at different places in the yard. This would obviate the necessity of waiting for an ambulance and the objectionable features of carrying injured men from the ships to the dressing room of the dispensary on stretchers.

The average complement of the marine garrison during the past year was 333, the greatest number at any one time being 554. As the sleeping accommodations within the barracks are not sufficient for so many men recourse is had to tents, and there are now quartered in tents 285 men.

It is the rule to vaccinate all recruits coming to the post, and in this connection it is worthy of note that a large percentage (52.3 per cent) of these vaccinations were successful. This goes to show that vaccination is a precaution that has been much neglected among the class of men from which these recruits are drawn, for many of them had never been vaccinated before.

In the rear of the marine barracks is the military prison. It is clean and in good sanitary condition. The average number of prisoners during the past year has been 107; the greatest number at any one time was 121. The health of the prisoners has been as a rule excellent. The custom of detailing squads of prisoners for out-of-door work upon the grounds around the island gives them exercise and diversion and is morally and physically beneficial in its effects.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL TRAINING STATION, NARRAGANSETT BAY, RHODE ISLAND.

By M. S. GUEST, *Surgeon, U. S. Navy.*

The medical work embraces that called for by the personnel of the station proper, viz: Barracks A, B, and C, the marine barracks, Naval War College, a detention building, U. S. S. *Constellation*, U. S. S. *Reina Mercedes*, and for a portion of the time the auxiliaries (converted yachts) U. S. S. *Hist*, U. S. S. *Wasp*, and U. S. S. *Yankton*, and the brig *Boxer*.

The average complement for the year was: Officers, 23; enlisted men, other than apprentice seamen, 320; marines, 102; and apprentice seamen, 1,012; a total average of 1,457. The total number of apprentice seamen transferred to hospital was 376, and the number of those surveyed, subsequent to June 11, 1905, was 67. Prior to June 11, 1905, cases for survey, among apprentice seamen, were transferred to hospital for that purpose. The total number of apprentice seamen discharged by reason of medical survey, not counting those so discharged at the hospital, was 55. The total number of apprentice seamen admitted to the sick list during the year was 1,018, with 44 readmissions. The general health of the apprentice seamen was good.

The following table shows the percentage of the prevailing diseases among them, as compared with the previous year:

Disease.	1904 (average complement 412).	1905 (average complement 1,012).	Disease.	1904 (average complement 412).	1905 (average complement 1,012).
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
Febris pneumonica	2.7	3.45	Morbilli	0.7	1.08
Bronchitis acuta	2.9	2.86	Febris cerebro-spinalis	.0	1.48
Bronchitis chronica	2.2	.098	Rubella	11.5	1.97
Pleuritis acuta	.9	1.38	Parotitis epidemica	.0	.098
Pleuritis chronica	.2	.098	Scarlatina	.4	.88
Catarrhus bronchialis	3.4	3.75	Diphtheria	18.4	1.08
Tonsilitis	4.1	17.98			

Barracks B, formerly designated as apprentice barracks and as new barracks, has, with constant supervision and care, been kept in fair sanitary condition, tho its construction and general heating and ventilating arrangements could be greatly improved. This feature was fully covered in the report made by Surg. G. H. Barber, U. S. Navy, dated January 11, 1904. The criticisms he made are applicable at the present time.

The general sanitary conditions of the marine barracks have been good, and few cases other than of trivial nature have occurred, if venereal diseases are excepted.

Barracks C was turned over to the Government on June 15, 1905.

The central power house of the station had to be enlarged and new boilers and dynamos installed before the building could be occupied. The first use made of it was to confine the overflow from the brig of barracks B. As the weather got colder, and there was no heat available for the building, this was discontinued, and the building was not again occupied until December 29, 1905, when the apprentice seamen under quarantine were quartered there. The building is of three story, wing design, each wing being complete in its own dormitories, drill hall, offices, mess hall, kitchen, brig, lavatories, etc.; the east and west wings have a dispensary and sick ward. Each wing can be isolated from the others by means of doors. There are three dormitories in each wing, viz, north, south, and enlisted men's dormitories; they are on the third story and are reached by stairs at the north and south ends of the second story, and by a flight leading thru a hatch. Ventilation is effected by means of one covered air shaft in the roof of each wing, containing an electric motor and fan; branches lead from this shaft to both large dormitories, to drill hall and closets, and a large branch leads to the head. The fan is fitted only to exhaust the air, and the system is calculated to change it completely every sixteen minutes. A swimming tank is provided in the equipment of each wing. The mess halls and kitchens are light and well equipped. The rooms in this building assigned to the medical department are as follows: A room for the dispensary, fitted with a sink and hot and cold water; a room for 11 beds, containing toilet room with bath and water-closet; a room to accommodate 12 beds, without toilet and bath, and a small room which forms the passageway from the dispensary to the adjoining room.

The detention building, in theory, is an admirable addition to the equipment of the station, being used primarily as a reception depot for recruits who arrive in civilian clothing from the several recruiting stations thruout the country. At the time of its completion it was adequate in size for the needs of the station, recruits at that time averaging from 8 to 12 or 15 a day. During the past year, however, the building has shown itself too small at various times to handle properly the number received. The bathroom is supplied with but three tubs, with a shower over each, a small, jacketed steam coil for heating water, a urinal, a washbowl, and one water-closet; these occupy all its available space, making the bathing of a large draft a tedious and long-drawn-out process. The floor of this room is of wood, and consequently pretty well water-soaked all the time. A larger space with tiled floor and ample bathing facilities is urgently needed. No ventilation is provided, except by doors and windows; roof ventilation would be easy of addition and is recommended. The upper floor or dormitory is computed as available for berthing 31 people in hammocks. Many times during the past year there were from 50 to 60 sleeping in this space, in addition to the sick from barracks A, for whom there was no other available place. The practise is insanitary and the building is not adapted for sick quarters. The fumigating and sterilizing room is located on the opposite side of the building from the bathroom, necessitating the removal of possibly infected clothing thru the building and the room where the clean clothing is kept. It would be more sanitary if this room adjoined that in which the recruits are stript. The fumigating chamber located in one corner of the sterilizing room is too small for present demands, and its capacity should be doubled. The partitions to the several rooms on the lower floor do not run up to the ceiling, thus leaving a space for the floating of germs all over the building, and making it impossible to fumigate any room separately. The partitions should run to the ceiling and be made as tight as possible. At present there are several large seams in them from the warping and shrinking of the wood of which they are constructed. During the past year, altho on account of epidemics the station was closed several times for the reception of recruits, nearly 3,500 were received and past thru this building. Should the station be called upon to keep up such an average—about 5,000 a year—it would greatly facilitate the work entailed if this building were remodeled and enlarged and a medical officer detailed for the ships and apprentice seamen under observation, and for the physical examination of recruits.

Barracks A, building No. 2, used as quarters for recruits under observation after passing thru the routine of the detention building, was completely destroyed by fire on the night of January 8, 1906. The detention building was so damaged as to be uninhabitable and is now undergoing repairs.

On April 15, 1905, on account of the development of diphtheria in barracks A, this building and the detention building were placed in quarantine and out of commission for a general overhauling and cleaning, and all apprentice seamen recruits at the lower end of the station were transferred to barracks B. Both of these buildings were disinfected in various ways, and a solution of corrosive sublimate was freely used on the floors and in the gypsum mixture for the walls.

Drafts of recruits began to arrive again on May 5 and continued until June 22, when receiving was discontinued on account of a case of cerebro-spinal fever in barracks A. No more recruits were transferred to barracks B, and all the boys then in barracks A were put into tents for sleeping, but allowed to use the building for messing and lavatory purposes. The walls, stanchions, and floors of the building were washt down and scrubbed with a solution of corrosive sublimate. On July 1 recruits were transferred to barracks B. All the boys quartered in barracks A were kept in tents at night until October 23.

On November 19 the reception of recruits was stopt on account of a case of scarlet fever in barracks A. The newcomers in the detention building were divided up between the *Hist* and the *Wasp*, and all the boys who had been sleeping on the *Constellation*, to prevent overcrowding in barracks A, remained on board for messing and living purposes. Barracks A was thoroly scrubbed again with a solution of corrosive sublimate and the detention building was fumigated with formaldehyde gas. This quarantine was raised on December 4, but on that day two cases of cerebro-spinal fever developed in barracks A, and récruits were again stopt.

On December 7, 10, and 12 a case of cerebro-spinal fever appeared each day, and on December 13 170 apprentice seamen who had been quartered on the *Reina Mercedes* were put in camp for sleeping. This camp was on the site of the tennis court, and was well sheltered from north and west storms. The tents were double, one over the other, with double flies and board floors, and the spaces between the floors and the walls were well packed with straw. On December 18, 19, and 20 a case of cerebro-spinal fever appeared each day—two cases on December 27 and one case on January 6, and one, the last, on January 17. The quarantine for cerebro-spinal fever was raised on February 7, 1906.

During the period covered from November 19, 1905, until February 7, 1906, the date of the raising of the quarantine, all the buildings, etc., exposed to infection were thoroly disinfected, some, such as the *Reina Mercedes*, almost daily. Corrosive sublimate solution, sulfur dioxid, formaldehyde in gas and in solution, and chlorinated lime were all freely used, and it was probably owing to energetic disinfection and strict quarantine that the disease was controlled and did not spread outside the draft in which it originated.

Barracks A was the only part of the station in which sulfur fumigation was practised. The disinfection by this means was most thoro. Live steam was turned into the tightly closed building while the sulfur was burning and the gas was carried into the remotest parts.

In conclusion, attention is called to the excellent work of the following-named members of the Hospital Corps, who were closely associated with the handling of the sick during the outbreak of cerebro-spinal fever, viz: Pharmacist W. H. Huntington (retired), F. A. McClain, hospital steward; W. Sether, hospital apprentice, first class; A. R. Lambke, hospital apprentice, first class; J. E. Doyle, hospital apprentice; W. E. M. Devers, hospital apprentice, and J. A. Von Osinski, hospital apprentice.

U. S. training ship Constellation.—The sanitary condition of this vessel was much improved by a thoro overhauling at the New York Navy-Yard, in 1904. The ship furnishes space for berthing about 100 men in comparative safety and comfort.

U. S. S. Reina Mercedes.—This vessel, formerly of the navy of Spain, is a protected cruiser of 3,090 tons displacement, and is designated in the Navy Register as an auxiliary to the *Constellation*. She was repaired, refitted, and somewhat remodeled at the navy-yard, Portsmouth, N. H., and was received at this station May 22, 1905. She is roomy, well ventilated by electric blowers, lighted and heated by her own plant, and has good wash rooms and head. Her main deck, roofed over from the cabin to the forecastle bulkheads, makes a large, airy, and well-lighted compartment, fitted with jackstays for additional berthing space.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL TRAINING STATION, SAN FRANCISCO, CAL.

By L. W. CURTIS, *Surgeon, U. S. Navy.*

The average complement of the station for the year has been 484, of which number the marines in camp have averaged 62; marine guard of the *Pensacola*, 22; ship's company, 200.

The freedom of the station from diseases usually attendant on bad sanitation and defective personal hygiene, which surpassed all former records, is to be attributed mainly to two general causes, namely, correction of some of the original faults in the construction of the barracks, and absence of overcrowding in ship and barracks.

The number of cases of infectious disease during the year was as follows: Catarrhus epidemicus, 14; febris cerebro spinalis, 2, and tonsilitis, 136. There were also 24 cases of scabies.

The barracks rested on foundations so low that the floor beams were in places in contact with the earth, and were found to be partially decayed. This serious fault in construction rendered the building damp, a condition always prejudicial to health in living quarters. The dampness has been corrected by the removal of the earth from under the entire building, except the right wing, which rests on a soft and porous sandstone. This also should be removed. The building originally had no roof ventilation nor skylights. Since its completion four large skylights have been let into the roof of the drill hall, which is also the dormitory, and one into that of each wing. This, while a betterment, by no means gives adequate ventilation. There should be installed a system of forced ventilation.

The heating of the drill hall is very defective by reason of the placement of the radiators. There are 2,945 feet of 2-inch pipe, which is all elevated 8 feet above the floor and placed directly under one of the two galleries which extend the length of the hall. The hammock billets of the apprentice seamen are on these galleries, and this disposition of steam pipes favors overheating one gallery and leaving the other and the lower part of the hall comparatively cold. With proper distribution of the radiating pipes, sufficient heat would be had with a third less piping in the drill hall and with a half less in the offices and other smaller apartments. Plans have been made and measures begun for improvement of the conditions under which clothing and bedding have hitherto been scrubbed. Clean salt water is to be piped into a tank for laundry purposes, supplemented by fresh water from a spring, which is collected in a cistern. A platform under cover will give protection from the weather and with other accommodations will effect a radical change for the better in this matter. It has been the practise to scrub clothing and bedding in a shallow cove where the water is charged with muddy sediment and contaminated by sewage from the ship and marine camp.

The sick quarters of the station consist of two small buildings. One was built for a commissary storeroom and is located immediately adjacent to the kitchen of the barracks, from which it is separated in front by a narrow roadway. It contains twelve beds, and affords but 600 cubic feet of air space to each. An operating room, added last year, constitutes the only feature of the structure suitable for hospital purposes. It is in the midst of the kitchen middens, with the coal pile close at hand. Dust from the latter and from the roadway in dry weather settles on the skylight, obscuring illumination, and finds its way into the operating room to a degree which renders asepsis doubtful. This ward has a small room for a hospital apprentice and a surgical dressing room. The other building has also an unsuitable site. It is divided by a partition into two wards of eight beds each with an allowance of 700 cubic feet of air space to each bed.

The excellent health of the marines in camp strikingly demonstrates the advantages of freedom from close quarters and overcrowding. The camp is located on the east slope of the island at an elevation of about 80 feet and on ground that slopes at an angle of about 15°. The tents are 9 by 11 feet, double floored, boarded to the height of the walls, and raised well above the ground. Each tent houses two privates and is heated by a large oil lamp and lighted by electricity. The camp is laid out on the right plan, with the latrine on one flank and the kitchen on the other. The latrine is moved from time to time and is frequently disinfected.

U. S. training ship Pensacola.—As a habitation the station ship *Pensacola* has the faults of her class, such as a housed-in spar deck, the absence of modern ventilating appliances, and open seams which collect dirt and moisture. Freedom from epidemic outbreaks may properly be attributed to the excellent condition of cleanliness maintained and to freedom from overcrowding. While good health has prevailed generally among the crew, there can be no doubt that living on board this class of ships tends to lower physical tone. An important improvement in ventilation has been effected by running a shaft from the spar deck to the forepeak, where the cells are located, thru which a wind sail conveys air to the cells and also helps the ventilation of the berth deck.

The station needs sick quarters which can accommodate 30 sick. The daily average of patients for the past three years has been 20.

The best location in point of accessibility and convenience would be about 100 feet north of the present sick quarters. This would place the building over the water on piling. Besides the advantage of accessibility it could readily be heated and lighted by the station plant and supplied with food from the barrack kitchen. A hospital in this location should be surrounded on all sides by a broad veranda, closed in on one side with glass to be used as an isolation ward in case of necessity. Any other available site would require a plant complete in itself and an ambulance.

EXTRACT OF REPORT ON THE UNITED STATES TORPEDO STATION, NARRAGANSETT BAY, RHODE ISLAND.

By N. J. BLACKWOOD, *Surgeon, U. S. Navy.*

The health of this station during the past year has been very good and to my mind is a demonstration of the fact that the longer men are in the service and subjected to the hygienic and sanitary care under the conditions of navy life the less apt they are to contract disease and up to a certain point the better able they are to resist even the ordinary affections of everyday life, due largely to their increased knowledge of how to care for themselves. The average complement of enlisted men on duty and under instruction at this station for the year 1905 was 302.19, and of that number the vast majority were in their second enlistment and many had been much longer in the service. They were of course selected men, chief petty officers and others, from whom our future warrant officers and some of our commissioned officers are to be selected, and being an intelligent class of men have readily understood and cheerfully assisted the officers in carrying out the general sanitary and hygienic regulations necessary in all military establishments.

At times there have been 500 men attached to the station, but there have been but 321 sick days for the year, resulting from 61 admissions and 4 readmissions. Of this number 38 were discharged to duty, 24 to hospital, and 3 died. These deaths were cases of drowning, there being none from disease. There was but 1 case of any contagious disease (diphtheria), altho Newport had diphtheria, measles, and scarlet fever. There were 229 outside cases treated during the year, including 1 fracture of the forearm and 2 burns from explosions of gasoline.

The dispensary is in excellent condition, and the working apparatus has been increased by the installation of an X-ray plant, erected by home talent, and by the addition of bedside lockers for the sick bay.

The general sanitary condition of the island is very good, but it could and should be improved, and future possibilities of danger guarded against by the addition of an incinerating plant for the destruction of garbage and other refuse and a small disinfecting plant for bedding and clothing. At present all the garbage and refuse from the seaman gunner's and other quarters is dumped over the sea wall at the north end of the island onto the beach and rocks, from which it is supposed to be removed by the tide and carried out to sea. As a matter of fact much of it is not carried away for days, and a good deal is again deposited by the tide on the beach at the south end of the island. While no disease has ever to my knowledge been traced to this source, yet it is a possible source of danger in the future and at all times an unsanitary and unsightly procedure; besides it breeds and sustains large numbers of rats, which invade the quarters when driven out of the sea wall by the high tides.

With an incinerating plant for garbage and a small steam sterilizer for clothing and bedding the station would be pretty well equipped to combat any epidemic and to keep it in good sanitary condition.

EXTRACT OF REPORT ON CAMP ELLIOTT, ISTHMIAN CANAL ZONE, PANAMA.

By C. F. ELY, *Assistant Surgeon, U. S. Navy.*

Before attempting to discuss the sanitary condition of the camp as it exists at the present time, a description of the place as we found it on locating here, May 15, 1905, after a precipitate departure from Empire, may prove interesting, as it will serve to illustrate the relations between conditions past and present.

On May 14, 1905, cablegraphic orders were received from marine headquarters, Washington, D. C., to evacuate the camp at Empire not later than the afternoon of the following day and proceed to Bas Obispo, 5 miles distant, where quarters would be found for our occupancy. These orders naturally necessitated a hurried exit, and only twelve hours elapsed between the time of our evacuating the old camp and occupying the new one.

The conditions at our new place of abode were what one would expect of a site in a tropical country which had been neglected for over a year. The ground was overgrown with vegetation of all sorts, so high and so dense as to impede all attempts at locomotion and prevent access to the various camp buildings. As soon as possible this exuberant growth was removed, disclosing a soil saturated with animal excreta by three companies that were encamped here early in 1904.

The buildings, while adequate in number, were found to be dirty and badly in need of repair. There were no latrines nor kitchens. Steps were at once taken to locate a source of water for temporary use. At first the Obispo River, a stream near by, was used for this purpose, but the water was found to be of very inferior quality and contaminated with sewage. It was first filtered, then past thru a Forbes sterilizing apparatus, and this purification was found sufficient for all practical purposes, altho several bacteriological examinations of samples of water taken as it issued from the so-called sterilizer showed contamination with the proteus vulgaris organism. No pathogenic nor gas-forming organisms were found.

Realizing that this water would never do for a permanent supply, arrangements were made with the sanitary authorities of the Isthmian Canal Commission for the erection of a dam to collect the water of a mountain stream 1 mile distant from the camp. The dam was soon completed, and the water, which was found on examination to be of excellent quality, is now used.

In the course of six weeks the buildings were repaired and painted by the Isthmian Canal Commission, latrines erected, ditches dug for surface drains, roads constructed, brush was cut, and running water installed in the living quarters, in order that all might avail themselves of the much-needed shower bath. These improvements, while involving a great amount of labor and inconvenience, added greatly to the general comfort and to the appearance of the camp.

That order could not take the place of chaos without some cost was soon evidenced by the increased number of admissions to the sick list. The suddenness of the change from one camp to the other, the immense amount of hard work involved, the dilapidated condition of the quarters, the lack of an adequate water supply, and the presence of Anopheles mosquitoes formed a combination that bade well to prove demoralizing to the general health.

At this time it was decided to subject the entire command to prophylactic treatment against malaria, and, accordingly, commencing May 15, the men were required to present themselves at sick quarters morning and evening and take quinine sulfate in solution. In order to insure regular attendance, a system of checking was adopted by which all delinquents were immediately discovered.

The drug administered in solution was naturally distasteful to the men, and some of them tried in various ways to escape the daily dose, but by dint of persuasion and coercion these were gradually brought into line, and soon all were taking it as a matter of course with absolutely no untoward symptoms.

July 13 the supply of quinine was exhausted. July 23, 20 ounces were purchased and prophylactic treatment was again begun. During the period of prophylactic treatment the daily average of cases was 0.209; during the period when no quinine was taken it was 2.33.

The marine detachment, consisting of 200 men, is at present encamped at Bas Obispo, about 15 miles from Panama on the line of the Panama Railroad. The camp proper is situated on an artificial plateau 150 feet above sea level, formed by crusht rock deposited there by the French during their occupancy, and covering an area of about 50 acres.

The buildings which constitute the camp are 11 in number. These buildings, originally erected by the French, are constructed of wood, with corrugated iron roofs, and rest on stone foundations, which raise them 4 feet above the ground. They are all 48 feet long, 11 feet high, and 23 feet wide, and are amply supplied with doors and windows. Eight are used as sleeping quarters, 7 of which are arranged side by side, 32 feet apart, 2 constitute the mess hall, and the eleventh does duty as a post exchange and reading room. All the sleeping quarters are supplied with shower baths. All buildings will soon be screened with wire netting.

Adjacent to the camp proper is a hill known as Buena Vista, 220 feet above sea level. This is occupied by 6 buildings, 5 of which are used as officers' quarters, the other serving as commanding officer's headquarters. Especial attention has been paid to the construction of open drains, by which the surface water is removed, all buildings being surrounded by trenches for this purpose, so graded and connected that they eventually empty their contents into a large gully at the lower end of the camp thru which the water is carried off.

The question of the disposal of garbage and excreta has been solved by the employment of 4 native laborers, who, morning and evening, under the supervision of the medical officer, remove the refuse that has accumulated and deposit it in trenches dug at a spot remote from the camp. When in working order the incinerator, which has been waiting erection by the Isthmian Canal Commission for over three months, will effectually destroy all camp refuse.

The fly-proof latrines, with portable receptacles and urinal attachments, are in use by the enlisted force and answer the purpose very well. They are located as far as possible from the mess hall. All seats are so arranged that when not in use covers prevent the access of flies to the excreta.

Unfortunately the stream from which the water supply is now obtained is inadequate to meet the demands of a rapidly growing community, as it supplies, in addition to our camp, the Canal personnel settlement nearby. The department of waterworks and sewers, Isthmian Canal Commission, is at work upon a new source of supply, which it is hoped will answer all requirements until this division is connected with the large permanent reservoir under process of construction at Comatcho, the engineer settlement adjacent to Empire.

The remaining buildings of our settlement are the guardhouse, quartermaster's storehouse and offices, and hospital. The latter consists of 2 carefully screened buildings, situated back to back, and connected by means of a covered walk, and has a capacity of 16 beds, exclusive of those for the hospital force. Two small rooms about 15 feet long by 6 feet wide, one at each end of the front building, serve as operating room and dispensary. While large enough for ordinary requirements, the hospital would not be sufficient in the event of an outbreak of epidemic disease. At present all contagious diseases are treated in tents, one being reserved for the segregation of stragglers for a period of five days.

The customary precautions against mosquitoes have become a routine method of procedure, and mosquito-net inspections after "taps" and sanitary inspections of the camp are regularly made.

As might have been expected, our medical experience here has been mainly with malaria, principally the aestivo-autumnal variety. For diagnosis of malaria fresh specimens of blood have been most satisfactory. For permanent specimens staining by hæmatoxylin (mature solution, at least two months old) and eosin has given excellent results.

Mosquitoes breed in the neighboring swampy districts and regularly pay nocturnal visits to the camp. During the past year many of their breeding places have been discovered and exterminated. The principal varieties of larvæ found were those of several varieties of Culex, Anopheles maculipennis, Anopheles albipes, Anopheles punctipennis, and Stegomyia fasciata.

The general health of the command, barring the numerous cases of malaria, many of which could have been prevented, has been good.

From July 1, 1904, to October 31, 1905, there were 240 cases of yellow fever on the Isthmus, with 80 deaths, a mortality of 33⅓ per cent; but since October 1, 1905, there have been but 4 cases, with 2 deaths.

During the year 2 cases of bubonic plague occurred at La Boca; 1 in June, the other in August. A few plague-infected rats were found on the wharf at La Boca, indicating that place as a point of infection. Sanitary measures were promply instituted by the canal sanitary authorities and no further cases developed.

Our records for 1905 show an exceedingly small number of cases of venereal disease. Of the 14 cases only 3 were contracted on the Isthmus, and they were easily traced to Panama. This was largely due to the quarantine that has been in force against both Panama and Colon, and the practise of restricting from liberty all cases of venereal disease. Prostitutes in the neighborhood of this camp, so far as I know, are few.

There was but one case of heat prostration, which is rather remarkable in view of the constant high range of temperature and the considerable amount of labor performed by the marines in the sun, often in the middle of the day. It suggests the possibility of other causes in addition to the action of the sun's rays as having some bearing on the etiology of this disease.

Experience in tropical countries has shown that the proper subsistence of large bodies of men from temperate latitudes temporarily stationed in tropical regions is of vital importance to their mental and physical welfare and to their efficiency. In this connection attention is invited to the inefficiency of the men assigned to duty as company cooks. The navy ration in use here is without doubt most ample, and properly cooked by competent persons would surely answer all requirements. These requirements are not met and never will be until steps are taken for the organization of a corps of properly trained men to prepare food in sufficient variety and in a cleanly way.

Physical examination of men recently arrived disclosed many cases of bad teeth among recruits.

No less than 50 teeth have been extracted at different times, many of which might have been saved had the services of a competent dentist been available. Dental service on the Isthmus is at a minimum. There are two capable dentists in Panama, but the rates are so exorbitant that enlisted men are hardly able to pay from their own meager funds the prices asked.

Attention should be called to the disadvantages of the practise of transferring the marines from the Isthmus during the winter. Considering the enervating influence of a year's sojourn here and the great difference in the climate of the Isthmus and that of the United States during the winter months, it would be better for the health of the men to make these transfers in summer.

Every effort has been made to conform to the excellent sanitary rules formulated by my predecessors. For their hearty cooperation in endeavoring to secure this end honorable mention may be made of the members of the hospital corps on duty at this camp.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, CULEBRA, P. R.

By R. C. HOLCOMB, *Passed Assistant Surgeon, U. S. Navy.*

The naval station occupies the former site of the town of San Ildefonso. In April of this year all but one or two of the native houses of this town were torn down and removed from the reservation. Soon afterwards the cutting of the rank underbrush about the station began. These two measures have much improved the sanitary condition of the station. The brush afforded shelter for mosquitoes during the day, and malarial fever among the natives proved a constant source of infection to those stationed ashore.

Distilled water, rain water, and water from San Juan, P. R., are used at the station.

Water distilled aboard the U. S. S. *Alliance* is used by the men and officers of the *Alliance* and by the families of some of the officers attached to the ship.

During the year a cement watershed was built on the small hill to the rear of the station. The rain collected from it is led to a cistern of about 100,000 gallons capacity. This watershed is inadequate to collect sufficient water to meet the demands of the station. It is planned to increase the area of the watershed and also the capacity of the cistern. In my opinion too much care can not be given to this subject. Provision should be made to surround this area with a strong fence at least 10 feet distant from the gutters of the shed and to cover this outer zone with some sanitary material to prevent the growth of vegetation which would sooner or later contaminate the water of the cistern with organic matter.

As the rain water collected is insufficient to supply the needs of the station, water is brought from time to time in a water barge from San Juan, P. R., and pumped into the cistern with the rain water. It is the experience here that this is a good potable water.

As constructed at present, the watershed has no separator and the cistern no filter. There is a screen of wire with about a one-half inch mesh at the inlet of the pipe leading to the cistern. The roof of the cistern is utilized as additional area to collect water. The cover not being tight, mosquitoes are apt to gain access to lay their eggs. To date no mosquito larvæ have been observed in the water.

The pastures of the island contain about 1,500 head of cattle. These supply the ships and station with fresh beef. It is killed once a week, at night, and served out the next morning before the animal heat is wholly dissipated. Chickens, turkeys, ducks, and guinea fowl are brought to the station from time to time for sale. There is no regular and established market place on the island. Sweet potatoes, melons, corn, and beans are raised and offered for sale. The quantity is not large and does not meet the demands of the station. Small boats plying between here and Porto Rican ports bring fruit in season. San Juan, with which we have regular weekly communication, supplies the bulk of the groceries for the officers and the enlisted men.

The station has no ice plant except that on the station ship. All ice for the marines and officers is brought from San Juan, about 60 miles distant. The ice, piled on the deck of the tug bringing it, and covered with a tarpaulin, is pretty well melted by the time it reaches here. I would recommend, for the health and comfort of those stationed ashore, that an ice plant be installed at an early date. The native beef could then be hung up longer, and thus made more tender.

The barracks described in the last sanitary report are of such loose construction that it is impossible to screen them from mosquitoes. The latrine and bakery stand side by side, about 20 feet apart. The kitchen is about 150 feet from the latrine. The latrine has a galvanized-iron trough, which is flushed out once a day with salt water. The steady trade winds diminish the number of flies, but, in my opinion, the latrine is too close to the bakery, the kitchen, and the commissary, and they should be better sealed and screened from flies.

There are no Government quarters for officers at this station.

A waste pipe leads from the men's latrine and wash house to a cove on the weather side of the station. The pipe is flushed but once a day with salt water. This is the only sewerage of the station. The refuse is carried from the barracks and dumped on the shore of the cove opposite the cleared portion of the station. Here it decomposes and gives off an offensive odor. In my opinion all refuse should be dumped in deep water or promptly burned. There is a garbage crematory, but it is not used. There is no provision for removing refuse from the houses of officers within the station limits.

Sick quarters, a wooden building belonging to the Marine Corps, and originally erected at one of the old camp sites, was taken down about eighteen months ago and reerected on the present site. Early this year a lean-to addition was made to it. The building contains a ward with five beds, a dispensary, a storeroom, and accommodations for the hospital corps. An office and dressing room, an operating room, and additional ward space are needed. At present, sick call is held in the 12 by 9 dispensary. Dressings, laboratory work, etc., are all done in this cramped space. San Juan being 60 miles distant, and there being. under ordinary circumstances, communication by tug but once a week, I would strongly recommend the addition of an operating room. At present the choice of a place for operations lies between the dispensary, where venereal diseases, tropical ulcers, and abscesses are treated, and the open back porch. Aside from the publicity of the latter place, exposure to all kinds of weather makes it an undesirable location for operations. A hospital adapted to the climatic and other conditions is earnestly recommended for the station. It should be of tight construction, properly screened from mosquitoes, and located on the weather side of all station habitations. There is no good site for a hospital within the present station limits.

The climate is excellent. The island is in the direct track of the trades, and the constant breeze from the east does much to soften the ordinary depressing effects of the Tropics. During the past year the temperature has averaged about 82° F. The highest temperature recorded in the log of the station ship during the year was 94° F., the lowest 70° F. The annual rainfall is variously stated to be from 28 to 55 inches. A rain gage will be constructed, and it is hoped that more accurate results may be given next year. The so-called wet season lasted this year from about the middle of July to the middle of December.

The colonization of Culebra was officially undertaken, under the Spanish rule, May 13, 1879, as a direct dependency of Porto Rico. In 1899 it had about 704 inhabitants, but since the establishment of the naval station the population has grown, until it is now estimated at about 1,100. As a dependency of Porto Rico, the administration of its affairs comes under a delegate appointed by the Porto Rican government. A practicante licensed to practise minor surgery by the superior board of health of Porto Rico is officially appointed by the governor, and has charge of the public health.

The few who can afford it have built cisterns for rain water. I have known several families to draw their water from a brackish pool about 60 feet from the beach, fouled by cattle, and on the banks of which the women of the adjacent houses washt their clothes. As might have been expected, they paid for drinking it with a violent bloody diarrhea. Many whose houses have galvanized-iron roofs collect the water in barrels, which usually teem with the larvæ of mosquitoes. Several species of *Anopheles* are distributed over the island. As a result of this condition of affairs, malaria is prevalent at all times, and especially at the close of the rainy season. Clinically and microscopically the simple tertian and the estivo-autumnal varieties of the fever are present. Of these, the benign tertian is most frequently found. Several species of *Culex* have also been observed; but the *Stegomyia*, which has been reported as present here by other observers, has not been found by me. I do not believe that the mosquito can be exterminated here with the ease claimed by some writers, on account of the contour of the island, the presence of open cisterns in the pastures for supplying the cattle with water, the rank underbrush, the persistent indifference of the natives, who will not realize the importance of protecting their rain barrels and cisterns from the breeding of the mosquitoes, and the inability of the naval authorities to enforce any sanitary regulations beyond the station limits.

Uncinaria was first found here about July of this year. Since that date many new cases have been discovered. The origin in all, so far as traced, indicates infection from some of the neighboring islands. Several cases of *Bilharzia hematobia* of the intestinal type, with the lateral spine on the ova, have been demonstrated. Associated with these we have also found the *Strongyloides intestinalis* and the *Trichocephalus dispar*. The credit of first demonstrating the presence of these parasites belongs to Asst. Surg. William Neil McDonell, U. S. Navy. The *Strongyloides intestinalis* and the *Trichocephalus dispar* are most frequently found associated with the *Uncinaria*. Two cases in the same family were recently found in which the ova of the *Uncinaria*, *Bilharzia hematobia*, and *Trichocephalus dispar*, with the embryo of the *Strongyloides intestinalis*, were all present.

The sequelæ of parasitic anemias are commonly seen.

Education for protection against mosquitoes, and building of closets for each habitation, to prevent the wide dissemination of nematode and trematode ova, would do much to improve the health of the community.

With the exception of the prevalence of malarial fever, the health of the station has been excellent.

Malaria gave more than one-half the sick days at the marine barracks during the year. Much has been done to improve the conditions at the station, but the constant presence of the disease beyond the station limits will continue to be a source of infection.

Venereal disease was responsible for 27 admissions, with 145 sick days. Out of 21 men sent to the naval hospital at San Juan during the year, 14 were ill with diseases of this group.

Skin diseases gave 14 admissions, with 92 sick days, the greater number of which were for ulcers contracted while working in the brush about the station.

Injuries gave 7 admissions, with 58 sick days.

The four groups just mentioned gave 913 of the 1,239 sick days. It is interesting to note that gastro-intestinal diseases gave but 4 admissions, with a total of 14 sick days. Small abscesses from the *Pulex penetrans* occurred from time to time, but did not incapacitate for duty.

Dengue, frequently reported heretofore, has not been observed by me.

The station ship U. S. S. Alliance.—During the year the ship has been moored off the naval station. The water supply is obtained from the ship's distilling apparatus, as described in the last sanitary report.

The artificial ventilating system was also described in the last sanitary report. It is disconnected and not in use. There is no necessity for it. The ship being constantly in port, the large gun ports can be kept open at all times, thus insuring efficient natural ventilation in the living spaces. The men sleep for the most part on deck with no ill effects.

The pay office is a somewhat cramped space on the starboard side of the berth deck. As the ship is moored it gets little of the benefit of the easterly breeze, and the temperature in this office ranges from 85° to 95° F. during working hours. Daily work in such heat, with poor ventilation and bad light, is a menace to the health of those employed there. A building soon to be occupied ashore will do much to improve the conditions under which work is done in both the commandant's and the pay office.

The sick bay is large and amply supplied with bunks. It is located aft on the berth deck, in the space formerly occupied as the wardroom. It does not receive the same free natural ventilation as the rest of the ship. It is dark, and during much of the day very hot. The building of sick quarters on shore would do much to improve the comfort of the sick of the ship.

With the above exceptions the sanitary condition of the ship is excellent.

During the year the health of the ship's company has been very good. The total number of sick days for the year was 935.

During the year there was one death from drowning—the only death at the station during the year.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, GUANTANAMO, CUBA.

By J. T. KENNEDY, *Passed Assistant Surgeon, U. S. Navy.*

This station differs from others in that nearly all the personnel live afloat. During the year the *Amphitrite*, *Monongahela*, *Vixen*, and a tug were stationed here. In June the *Amphitrite* went to Pensacola for repairs, expecting to return in two months, but was quarantined till November on account of yellow fever in the city.

The average strength of the command at the station was 300, number of sick days 2,148, and percentage of sick 2.24; 1 officer and 14 men were invalided to the United States with various disabilities, and 3 deaths occurred—1 from fractured skull, 1 from abscess of the liver, and 1 from pernicious malarial fever. There was no epidemic disease. The greatest single cause of admission to the sick list was malarial infection, with 42 entries and 240 sick days. The station completed a second year of occupancy with no sanitary changes worthy of consideration. A new dry dock is in process of construction, a system of target ranges is nearing completion for use by the fleet in spring, the wireless station is ready for acceptance, and a large coal pile and reservoirs are in working order. This activity in construction is mainly in the hands of laborers, but owing to the scarcity of labor and the necessity of haste some of the preliminary work required the service of the men. At present the service of the enlisted men is rarely required ashore, except that of some carpenters' mates to complete the target ranges, and an element of irritation which fomented unrest and discontent is now removed.

In the absence of any necessity for a large force of men, and in view of the hardships and deadly monotony of existence in this port, it would seem advisable to substitute for the present undesirable ships quarters ashore for a small number of men and officers. As things are now, the station is dependent on the town of Guantanamo, 15 miles away, for supplies and water. This town, with the small village of Caimanera, may require quarantine at any moment, and the station should be prepared to supply its own needs. The factor of quarantine was brought forcibly into prominence in October, when a case of yellow fever occurred in Guantanamo. The best authorities in Cuba concurred in the diagnosis, but autopsy showed ulcer of the stomach and nephritis to have been the cause of death. Arrangements were made immediately to build a temporary hospital on the station and to provide for a possible epidemic. But, unfortunately for future needs, the change in diagnosis brought a check in the building operations, and the lesson of preparation in advance remains unheeded. The supply of meat and ice is brought from Guantanamo every morning by train. As the beef is killed the night before, it is never in prime condition, and is tough and unpalatable. No mutton nor fresh pork is obtainable, and the lack of variety is wearing on the contentment of the men. To improve such conditions, a refrigerator system is needed by which meat can be kept until it is tender. Ice of assured purity could then be obtained instead of that now in use, and the station would be relieved of the danger consequent upon the necessity of depending on Guantanamo for supplies. Among the principal items reported as necessary for the *Amphitrite* while repairing at Pensacola was an ice machine, but this was disapproved by the Department. As there is no other means of cooling the drinking water, the insanitary practice of placing ice in the scuttle butt must be employed.

For the work under construction ashore a miscellaneous force of 400 Jamaica negroes, Chinese, Cubans, and Spaniards is employed, which presents many difficulties to the medical officer. Considering that this or a larger force will be engaged on the station for years to come, that many of them have done duty around the Panama Canal and carry in their blood the parasites of pernicious malarial fever, and that mosquitoes are ubiquitous the year round, the danger of infection to every person on the station is manifest. These laborers live as best they may in shacks or tents of their own construction and at some distance from the navy-yard, with little or no protection from mosquitoes, and a number of them are constantly on the sick list with fever, which leaves them weak and unfit for heavy work. After a delay of two years authority has been obtained to house these people, and it is expected that properly screened buildings will soon be erected, with a diminution in the number of fever cases and greater safety to the station.

The absence of sick quarters for the proper care of civilian employees is an economical error that works injury to the rapid construction of the station. As a rule, when laborers become seriously ill they must make a weary trip to Guantanamo and take their chances of being received in the local hospital, as many are refused admission from want of funds on their part or lack of space in the hospital, which is small, poorly attended, and self-supporting. Few of these laborers ever return to the station, and their places are supplied with difficulty. Many Chinese and Spaniards when ill never apply for treatment, but take such remedies as may be handy, and after the acute state of the fever has passed, emerge from their huts emaciated, cachectic, and unable to do a proper day's work. The malarial parasites in their blood are a menace to every person on the station. The efforts of the medical officer are rendered impotent by lack of proper sick quarters and attendants, and it is discouraging to face the possibilities of an epidemic of yellow fever or other contagious disease in view of the primitive conditions under which these people live.

That infected laborers are a menace to the health of the men that may come in contact with them is shown by the experience of a gang of carpenters' mates who pitched a camp on the target range near their huts. Eleven out of seventeen became infected with a severe form of malaria, which resisted treatment by quinine, and one died the fourth day after admission, his blood showing the parasite of pernicious malaria. This lamentable occurrence is in danger of repetition as long as the laborers are left to their own devices for treatment.

The rapid growth in importance of Guantanamo Bay as a naval base for the West Indies clearly emphasizes the necessity for a naval hospital. This station stands alone among our shore stations in not having even a temporary structure that could be called upon in case of a sudden emergency, and the distance to the nearest hospital in the United States occasions some difficulty to the fleet when it is advisable to place grave cases of illness or injury in hospital. During the visit of the fleet last spring the *Maine* contributed a case of mumps, the *Cleveland* a case of diphtheria, the *Missouri* a case of pneumonia, ending in acute phthisis, the *Florida* a case of German measles, and the *Topeka* one or more cases of measles daily for several weeks. Fortunately the Bureau had supplied several tents, so no hardships occurred, but if in addition a grave accident had happened, the disposition of the injured would not have been easy. The absence of a hospital ship brings this question of providing for accidents into prominence, and it is earnestly hoped that some sort of hospital structure will soon be erected.

Neither the sick bay of the *Amphitrite* nor of the *Monongahela* could be considered a desirable place for capital operations, yet it has been found necessary to use them in four operations for appendicitis and in many operations of lesser magnitude, handicapping the surgeon and prejudicing the success of good work.

It is earnestly recommended that the plans for a hospital, as contemplated in the original scheme of development of the station, be so modified as to permit the construction of at least one or two wings for immediate use.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, HAWAII.

By W. E. TAYLOR, *Medical Inspector, retired, U. S. Navy.*

The general plan of the station remains unchanged. The sanitary condition is excellent. A wireless telegraph station, consisting of two buildings, has been erected during the year.

The cesspool in rear of the barge crew's quarters has been filled in, and the closet connected with the main sewer.

The detachment of marines is still quartered in the empty coal shed, which is as undesirable for quarters as it was at the time of the last annual report. The percentage of pulmonary affections from the detachment of marines is much higher than from the crew of the U. S. S. *Iroquois*.

The marine encampment for target practise this year was from April 25 to July 5, and was occupied by the marine detachment from these barracks, crew of the U. S. S. *Iroquois*, crew of the U. S. S. *Boston*, crew of the U. S. S. *Petrel*, and two companies of coast artillery. The site of the camp was approximately that of last year, except that on the recommendation of the surgeon the actual site of last year's camp was not occupied, and the tents were pitched on higher ground. The water supply was carefully guarded, and the sinks well located and kept in excellent sanitary condition. No intestinal diseases occurred during this time.

U. S. S. Iroquois.—The station ship *Iroquois* has during the year been thoroly fumigated with sulfur, new wire mattresses have been installed and the old hair mattresses replaced with new felt ones. Electric fans have been installed, on the berth decks for use in port, and a ventilator has been placed in the engine-room hatch. The ventilators leading to the forward berth deck have been lengthened, greatly improving the ventilation at sea. Both berth decks have been repainted.

The general health of the city of Honolulu has been good. The port was in quarantine from October 26 to December 28 on account of bubonic plague, of which during the year there were 9 sporadic cases and 9 deaths. All cases occurred in the oriental quarter of the city, at some distance from this station.

The general health of the station has been excellent.

The total original admissions during the year have been 55 and readmissions 6. Of these 55 admissions, 21 have been for venereal disease. The total sick days for the year were 881, of which 143 were for venereal disease.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, ISLAND OF GUAM.

By C. P. BAGG, *Surgeon, U. S. Navy.*

During the year the health of the personnel of the naval colony was very good for a tropical station. Except for a small epidemic of varicella, no infectious diseases occurred among the enlisted men or officers. A total loss of 138 sick days resulted from the effects of the sun's rays, directly traceable to exposure between the hours of 11 a. m. and 3 p. m. Drills are now held up to 10 a. m. and after 4 p. m., and when practise marches are taken the men rest between these hours.

There were 2 deaths among the men, 1 of hepatitis suppurativa (multiple) and 1 of pancreatitis acuta (hemorrhagic). The following cases of disease were invalided to the United States: Diarrhea simplex, 1; prostatitis, 1; dementia, 3; dysenteria acuta, 1; neurasthenia, 3; amaurosis, 1; anemia, 3; anemia and furunculus, 1; tuberculosis pneumonica chronica, 1; gonorrhea, 1; rheumatismus articulosis acutus, 1; urethra strictura, 1; cordis palpitatio, 1; sarcoma, 1; otitis media, 1; surditas, 1; catarrhus intestinalis chronicus, 2; tachycardia, 1, and hepatitis acuta, 1.

Surgical work included natives and civil employees, as well as members of the Navy and Marine Corps. The following table shows the results of the operations performed from the 1st of March to the end of the year:

Disease or condition.	Operation.	Result.	Number of cases.
Hernia, strangulated	For relief	Cured	1
Hernia, inguinal	Ferguson's	do	1
Hernia, inguinal, congenital, with cystic testical.	Ferguson's and removal of testicle.	do	1
Fibrohæmatoma, knee	Excision	do	1
Incised wound, foot	Amputation, second, third, and fourth toes, tendon suture great toe.	do	1
Incised wound, hand	Tendon suture, second and third fingers.	do	1
Appendicitis	Extirpation	do	1
Incised wound, hand	Amputation, second and third fingers.	do	1
Lacerated wound, hand	do	do	1
Fibrohæmatoma, neck	Extirpation	do	1
Contracture, atrophy and chronic ulcers, left leg.	Amputation, lower third thigh	do	1
Carcinoma, right breast	Extirpation—Mayer's	Died of dysentery 3 months later.	1
Contused wound, scalp	Suture (periostium)	Cured	1
Adenitis, inguinal	Extirpation	do	3
Liver abscess, multiple	Rib, resection and drainage	Died	1
Gunshot wound, great toe	Partial amputation	Necrosis	1
Dislocation, right femur	Reduction	Cured	1
Infected wound, toes	Amputation	do	5
Compound fracture, both bones, leg.	Incision and reduction (anesthesia).	do	1
Large abscesses, various locations	Incision, curettement	do	17
Ulcers, large, various locations	do	do	4
Infected wounds, various locations	do	do	14
Fracture, fibula	Reduction	do	1
Minor wounds, not infected	Suturing and dressing	do	96
Ingrown toenails	Incision and suturing	do	3
Total			160

OBSTETRICAL OPERATIONS.

Impacted shoulder presentation	Podalic version	Cured	1
Dystocia	Forceps, 1 high, 1 low	do	2
Procedentia with hypertrophied cervix and dystocia.	Forceps	do	1
Dystocia with septicæmia from decaying child in utero.	Craniotomy and piecemeal delivery	Dead from septicæmia in 2 days.	1
Septicæmia from retained placenta.	Curettement under anasthesia	Cured	1
Total			6

The only venereal disease that exists on the island to any extent is gonorrhea. By examination of the enlisted force from time to time for this disease, and admission to and retention in hospital of all suffering from it, there was a marked reduction in the number of cases. The compulsory treatment public women were subjected to from last April also had a marked bearing on obtaining this result.

But one case of acute syphilis was seen in the personnel, which was contracted in China in 1904, tho some of the men were under specific treatment for long-standing cases.

A few cases of venereal disease were reported from the station ship, but all were
tricted on board until well or transferred.

During the year an operating room was fitted up in which surgery can now be
ne with a reasonable expectation of aseptic results.

laboratory is partially completed. When finished it will be possible to attain
re definite results in bacteriological and chemical work than has heretofore been
sible. The field for the study of pathology and bacteriology is practically unlim-
l, but with the present number of medical officers it is impossible to undertake such
rk on a large scale. The plan now followed is to examine the fæces, urine, and,
en necessary, sputum of all patients admitted to the wards of both the Maria
roeder and Susana hospitals. When the laboratory is completed this plan will
followed as far as possible with all out-patient-department cases as well.

n October last a system of case cards, numbered serially and similar to those
d in out-patient departments of large hospitals in the United States, was begun
h all natives attending either of the out-patient departments. From its inaugu-
on, October 12 to December 12, 1905, 1,044 patients were treated by the medical
artment. Of this number 918 were treated at the native dispensaries in Agaña,
in Piti, and 25 in Sumay. The last two towns were cared for by hospital appren-
s. In Agaña two sick calls were maintained, one for men and boys over 12
rs of age and the other for females and males under 12 years of age. In the
ner 174 patients were treated and in the later 744. These figures show the
ter prevalence of disease among the women and children, and especially among
children. The appended table, which follows Form K as closely as possible,
vs the various diseases treated. The most common causes for treatment, as shown
his table, were: Ascariasis, epidemic asthma, conjunctivitis, ephemeral fever,
ro-enteric infections, scabies, ulcers, and infected wounds.

scariasis is a very common disease, the stools of natives being rarely free from
ris eggs. The number of worms in one person varies from one to hundreds. The
ptoms produced are various: Abdominal pain, loss of appetite, distended abdo-
due to loss of tone in intestinal wall, and vomiting due to migrations of worms
stomach. Cases of intestinal perforation due to ascaris are rare; but several
ared at autopsy, and showed that the migratory power of the worm is very great;
nose, larynx, mouth, stomach, appendix, peritoneal cavity, and gall bladder
g invaded. The worms are of two colors—red and white. Two varieties of eggs
ound which resemble each other except in color, one being white and the other
w.

other important disease is a form of asthma which occurs in epidemics. These
mics follow cold and rainy weather, and usually appear about two days after
sure to such conditions. The attack appears suddenly and is characterized by
nœa and noisy, creaking respiration, audible at a distance of several feet.
ss the attack is exceptionally severe inspiration is unaffected, the creaking
present over entire chest, appearing only upon expiration. These physical
remain for a number of days after other signs of the disease have disappeared
he patients claim to be entirely well. As a rule there is no fever, but in excep-
l cases there is a rise of temperature of one or two degrees. The attack may
day or two weeks. Recurrences are frequent. There appears to be no immu-
onferred by an attack. The disease has a considerable mortality among the
g and the very old, death practically always resulting from cardiac weakness.
imited number of cases that have come to autopsy make it impossible to say
he changes noted are characteristic of the disease. Conjunctivitis is varied in
nd degree. Some of the cases are of the phlyctenular variety, but the majority
simple injection of the palpebral and ocular conjunctiva, and vary greatly in
t and resistance to treatment. Ephemeral fever, common in children, usually
ps during the afternoon and subsides, with or without treatment, by the fol-
g morning. The temperature varies between 99° and 105° F. Gastro-enteric
ions resemble those seen in children everywhere during the summer and are, as
, due to errors in diet. Among older children the various intestinal parasites
sponsible for many of the gastro-intestinal symptoms. Scabies and several
es of tinea are very prevalent. Ulcers and wounds are very frequent and are
invariably infected. Several varieties of intestinal parasites have been noted,
ing Ascaris lumbricoides, Tricocephalus Trichimus, Uncinaria duodenalis, and
yloides intestinalis. They all appear to have pathological significance, but
ations concerning the whip and strongyloid worms have been too scanty to
definite statements. The amœbæ of dysentery have been found in a number
s. Hook worm infection is quite prevalent and in rare cases has produced
rave anemia.

Tabulated statement of diseases treated in out-patient departments, October 12 to December 12, 1905.

Diseases.	Agaña.		Piti.	Sumay.	Total.
	Male.	Female.			
Ascariasis	2	128	36	9	175
Abscess	2	16	15	1	34
Adenitis cervicalis	1	6			7
Acne		1			1
Abrasion		1			1
Adenitis, tubercular		1			1
Asthma, epidemic	6	56			62
Blepharitis	1	2			3
Bronchitis, acute	20	29			49
Bronchitis, chronic		2			2
Conjunctivitis	26	143	4	2	175
Cephalalgia	2		10	4	16
Constipation	1	3		1	5
Contusion	2	2			4
Coryza	4	2			6
Cysts, sebaceous	3				3
Carcinoma, breast		1			1
Deformity	1	1			2
Diarrhea, simple	18	40	5	1	59
Dysentery, amœbic		1			1
Eczema		2			2
Enteralgia	1	5			6
Enteritis, acute		23			23
Ephemeral fever	15	61	7	1	84
Felon	1				1
Furunculus	2	5		3	10
Frambœsia		8			8
Gastralgia	1				1
Gastritis, acute	2	8			10
Gastro-enteritis, acute		78			78
Ground itch		1			1
Gonorrhea	1				1
Hysteria		1			1
Indigestion, acute gastric		4			4
Kyphosis		1			1
Leprosy	5	1			6
Laryngitis, acute	1	1			2
Myalgia, acute		1			1
Neuralgia		1			1
Otalgia	1	2			3
Odontalgia			3		3
Otitis media	1	5		1	7
Phymosis		1			1
Pharyngitis, acute	4	11			15
Rhino paryngitis mutilans	2	3			5
Scabies	2	23	4		29
Tinea corporis	5	3		1	9
Tonsilitis, acute	1				1
Tuberculosis, pulmonary, chronic		3	1		4
Tuberculosis, intestinal		1			1
Ulcers	24	33	12		69
Uncinariasis	1	2			3
Varicella	2	1			3
Verruca	1	4			5
Vulnus contusum		1			1
Vulnus incisum	5	8	4		17
Vulnus laceratum	1			1	2
Vulnus punctum	5	4			9
Vulnus punctum, corneal	1	1			2
Vulnus venenatum	5	2			7
Total	174	744	101	25	1,044

NOTE.—Under females are included all males under 12 years.

On the 23d of September a hospital for women and children was opened, the necessary funds having been obtained by subscription, fairs, sales, etc. This will undoubtedly prove to be one of the most useful institutions on the island. It is already reaching in its wards more patients than were ever available for treatment before, and the tendency is growing among the natives to appear for treatment more and more readily. This institution is managed by a private incorporated association and receives aid from the island government. The governor is president of the association, and the senior medical officer is a member and the superintendent of the hospital. The association has ordered an outfit of drugs, medicines, and surgical dressings from the United States, which should reach here in about six weeks.

When these articles arrive a dispensary will be established at which all native patients will be treated. A nominal charge will be made for every prescription or dressing issued, and in this way the association will be assured a small but steady income.

The two hospitals—Maria Schroeder for men, and boys over 12, and Susana for women and children—give the native population greatly needed and proper places for treatment. In almost all cases of illness among these people the native home is absolutely unfitted for the care of the sick because of its insanitary surroundings.

Young native female nurses are under training and, with proper selection, show considerable aptitude for the work. When eventually trained, these nurses will replace the incompetent midwives, now the only available nurses on the island. The incompetency of these midwives is mainly due to the fixt ideas of old age. One woman practising during the past year was found to be 80 years of age and practically blind. Medical officers on duty at this station have struggled for five years, but with little success, to instruct the midwives in nursing and obstetrical work. It has been impossible to teach them cleanliness, and, as a result, 13 deaths from tetanus neonatorum and 2 from puerperal septicæmia occurred this year.

During the early part of the year the work for the prevention of smallpox, begun in December, 1904, was continued, with the result that the entire population of the island was vaccinated by the middle of June. Total number vaccinated, 10,829; successful, 7,070; percentage of success, 65+; total number revaccinated, 420; successful, 253; percentage of success, 60+; total number, with scars, vaccinated, 4,922; successful, 2,249; percentage of success, 47+.

The children born since June, 1905, are to be vaccinated during January, 1906. By vaccinating in January of each year all children born during the preceding twelve months, continued protection will be insured. All passengers and ships' crews landing in Guam are inspected by the quarantine officer and vaccinated if found unprotected. All persons remaining in harbor more than twenty-four hours are vaccinated if found unprotected.

The following tables show the birth and death rate by months, the death rate over and under 10 years of age, and the causes of death during the present year. It will be noticed that while the death rate has increased steadily for the past three years the birth rate has as steadily decreased. It will be noticed also that the mortality under 10 years of age increases directly with the wet and stormy weather, being greatest in November.

Months.	Births.			Deaths.				
	Male.	Female.	Total.	Male.	Female.	Under 10.	Over 10.	Total.
December, 1904	19	28	47	16	6	11	11	22
January, 1905	24	14	38	13	8	16	5	21
February	12	17	29	11	13	17	7	24
March	16	19	35	17	12	13	16	29
April	19	20	39	10	19	11	18	29
May	28	27	55	12	11	14	9	23
June	12	12	24	8	5	8	5	13
July	17	17	34	9	9	10	8	18
August	17	14	31	22	9	21	10	31
September	19	20	39	10	5	10	5	15
October	26	30	56	14	15	20	9	29
November	14	24	38	40	25	52	13	65
Total	223	242	465	182	137	203	116	319

Of the total number of deaths, 63.6 per cent was under 10 years of age, and 36.3 per cent over 10 years of age.

Births	465
Deaths	319
Excess of births over deaths	146

Diseases.	Number.	Per cent.	Diseases.	Number.	Per cent.
Gastro-enteric	95	36.99	Convulsions	2	
Unknown	62	19.4	Alcoholism	2	
Tuberculosis	35	13.6	Septicæmia	2	
Asthma	22	8.5	Leprosy	2	
Tetanus	14	5.4	Suicide (hanging)	1	
Senile debility	9		Sarcoma	1	
Anemia	7		Cirrhosis of liver	1	
Meningitis	7		Chronic bronchitis	1	
Pneumonia	6		Leukæmia	1	
Organic heart lesion	4		Fractured spine	1	
Abscess of liver	4		Typhoid	1	
Inanition	4		Arterio-sclerosis	1	
Asphyxia neonatorum	4		Membranous laryngitis	1	
Drowning	3		General convulsions	1	
General paralysis	3		Gangosa	1	
Cerebral hemorrhage	3		Acute dilitation heart (labor)	1	
Hemorrhage	3		Icterus neonatorum	1	
Nephritis	3		Acute congestion of lungs	1	
Cancer	3		Ascites	1	
Poison	2		Acute pancreatitis	1	
Murder	2				

Ratio of deaths and births—1900 to 1905.

Year.	Deaths.	Births.	Gain—births over deaths.
1900	288	328	40
1901	258	433	175
1902	243	400	157
1903	263	526	263
1904	287	492	205
1905	319	465	146
Total	1,658	2,644	986

Total population, December 1, 1905, 10,501.

During the past nine months, four young natives have been employed in the hospital as laborers, their services having been found necessary for the proper treatment of the native patients in the hospital and town. Special training in treating the native sick has been given them, and it is planned to have them employed by the island government, when sufficiently trained, to act as native hospital apprentices in the remote towns at the southern end of the island.

The sanitary order of the governor, issued December 8, 1905, marks the first systematic endeavor to clean and keep Agaña in a better sanitary condition than has heretofore been possible. One hospital steward will be detailed for duty as a sanitary inspector under the immediate direction of the senior medical officer and the medical officer on native duty. It is expected that the enforcement of this order will do much to improve the existing filthy condition of the town. No proper sanitary condition can ever be established, however, until provision for a water supply and sewerage system is made.

Medical officers of the Navy have to treat in the Tropics many cases of fever, headache, insomnia, nervousness, gastro-intestinal disturbance, and melancholy which can be directly traced to exposure to the sun's rays. Observations made in the Philippines during 1900, 1901, and 1902, and in Guam during 1905 led to the conclusion that officers and enlisted men of the Navy and Marine Corps, as well as other white men and even natives, are often very seriously disabled by such prolonged exposure. The ultraviolet ray is thought to be the disabling agent in sunlight, and its most dangerous effect is on the brain and nervous system.

There are three well-defined stages in the general condition of the white man who is regularly exposed to tropical light for any prolonged period: First, stimulating effects—injected conjunctiva, headache, increased mental and physical activity, increased nervous energy, a tendency toward insomnia, diarrhea, and ephemeral fever. Second, depressing effects—disturbance of functions, especially gastro-enteric, mental depression, insomnia, loss of weight and strength, tachycardia, general nervousness, and sun fever. Third, organic lesions—impaired memory, aphasia, dementia, temporary insanity, neurasthenia, optic atrophy, anemia, and heart dilatation. Mental irresponsibility is a marked symptom in all cases.

The above effects have been repeatedly observed. Women are even more seriously nd quickly affected than men.

Officers and men on duty in the Tropics should not be exposed to the midday sun, nd should wear headgear and clothing adapted for comfort and constructed at the ame time with reference to the stoppage of the violet and ultraviolet rays. Major Voodruff, of the Army, recommends a thick, but not heavy, khaki helmet, green ned, or tinfoil lined, or, in cases where the campaign hat only is available, filling he crown with green leaves when on march. He recommends also black underear and white outer clothing. Some army medical officers in the Philippines are ow wearing such clothing in order to report on its usefulness.

With the best-known precautions at present, men are constantly going home disbled, and it seems advisable to reduce the tour of tropical service to one year, or, if at is impossible, to allow one month's leave each year in a northern latitude. A econd tour of tropical service more quickly disables than the first, very few escaping ome serious ailment. This is most clearly evident in the American who finds it npossible to remain quiet indoors during the midday hours, and, having been comaratively well during his first tour, thinks he may expose himself without danger.

In Guam the isolation factor assists the sunlight in producing mental depression.

It is recommended as necessary for the health of this station that the station ship e sent at least twice each year to Japan for one month, in order to allow officers d men an annual change of one month in northern latitudes.

XTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, KEY WEST, FLA.

By G. R. PLUMMER, *Acting Assistant Surgeon, U. S. Navy.*

In the latter part of 1905 the level of almost the entire station was raised to that the breakwater, in order to secure drainage and do away with the depression presenting the site of the old "Key West pond." The filling was effected by suckg mud and sand from the sea bottom near by and pumping it on the land. The ospect of disturbing the mud caused grave fears on the part of the old inhabitants, ho predicted an epidemic of yellow fever as the result. The matter was referred me for a professional opinion, and a report adverse to the mud causation theory s made. The work of filling was begun and finished without an increase of sickss of any kind, and during the progress of the work the true way in which the troduction and spread of yellow fever is accomplished was demonstrated to the alth and immigration authorities. From questioning applicants for enlistment it s found that men who were stranded in Habana were coming to Key West in iall boats—very probably smugglers—leaving Cuba in the evening and landing on e beach before daylight the next morning. They would thus evade the quaranie, immigration, and custom-house officers, and within twelve hours after leaving abana, where yellow fever existed quite extensively, apply for enlistment in the vy or Marine Corps. This is a way yellow fever may be introduced from time to ne in Key West.

With the knowledge that the disease may be so introduced at any time, there is pt on hand in the barracks a portable fever ward, and suspicious cases of illness placed in it until the nature of the disease is determined. By its use the spread dengue from the first case among the marine detachment was prevented. The me of white pine is held together by screws and covered with mosquito net. It entered by a door, and is large enough to contain a bunk, a table, and a chair.

An interesting thing from a surgical standpoint in this locality is the rôle played the *Ascaris lumbricoides* in the production of appendicitis or conditions simulating One is liable to cut into a tumor in the right iliac fossa, which turns out to be a nch of round worms that have burrowed thru the intestinal wall. The ascaris oduces the most bizarre examples of angio-neurotic œdema. For instance, if you at hemorrhage of the sclera in a child scientifically you give santonin.

Barring dengue, the health of the personnel has been good, due in great measure the pure and ample water supply and to keeping the grounds clean and free from st by frequent wetting with sea water.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, NEW ORLEANS, LA.

By W. H. BLOCK, *Acting Assistant Surgeon, U. S. Navy.*

The general health of the command at this station was very good. There were no cases of epidemic disease. During the summer there was an epidemic of yellow fever in and around the city of New Orleans. There were no cases of the disease among the officers or enlisted men of the station. Admissions to the sick list during the year were 33. Of these, 2 admissions and 3 readmissions were for febris intermittens.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, OLONGAPO, P. I.

By E. J. GROW, *Surgeon, U. S. Navy.*

The health of the men at this station was very good during the past year; no cases of contagious disease occurred. Asiatic cholera, which was epidemic in Manila, and still flourishes to some extent in the provinces, did not appear here.

The only steamboat touching at this port, other than men-of-war, was carefully quarantined at Marivales, P. I., after leaving the infected district and the people who arrived were watched for a reasonable length of time for any development of the disease.

Posters were put up in the native town instructing the inhabitants to boil all water used for drinking and washing and to see that all food was cooked before eating it. Directions more in detail were given the native school children and they were told to see that their parents understood the instructions and carried them out. This was undoubtedly of aid in preventing the introduction of cholera on the naval reservation.

There is little or no malaria at this station, but back in the country, where fresh-water streams and ponds are numerous and where mosquitoes are plentiful, the disease is common, and the marines on their practise marches into the hills frequently returned with the disease, the plasmodium of malaria being found in practically every case.

Another form of fever, commonly called "denguis," was not infrequently seen. It did not correspond in all respects to the dengue or breakbone fever of our Southern States. Most text-books on medicine describe the pain of dengue fever as most intense and the patients as "literally racked with torture," but no such severe symptoms were ever noticed in the numerous cases seen at Olongapo. There seemed to be no secondary fever, and, altho the disease was apparently allied to dengue fever, it was thought to be a new clinical entity not thoroly understood.

Of three common and always to be dreaded diseases which are prevalent in the United States, tuberculosis is rarely seen among the enlisted force as an original infection, and typhoid fever and pneumonia have not appeared at all at this station. It might be mentioned also that scarlitina, diphtheria, rubeola, cancer, enteric fever, gout, rheumatism, and all acute affections of the respiratory tract are rarely seen in the Philippines.

No cases of amœbic or infectious dysentery occurred during the year.

Venereal disease caused the greatest percentage of sick, and in nearly all cases the infection was contracted at Cavite or San Roque, the latter a town just beyond Cavite and a veritable hell for venereal dissemination. The system in vogue of bringing a company of marines from Cavite to this station every month to replace a company returned to Cavite explains the presence of venereal disease contracted elsewhere. Venereal disease contracted at Olongapo can be considered as nil, as sanitary inspection reduced the source of infection to that extent. The total number of venereal cases gave 734 sick days out of a total of 3,278, and the actual percentage of sick during the year, eliminating cases of disease contracted elsewhere and brought here, was 1.4, which fairly represents the health of the station.

The seasons commonly known as dry and wet are well named, the former beginning about November 1 and ending about June 1, and the latter occupying the remainder of the year. The southwest monsoons are the prevailing winds during the wet season and the gentle northeast winds during the dry. The natives claim that the biyearly change of winds brings on a fever, the "calentura," but observations of the effects of this change do not substantiate the idea. During the wet season, in addition to the moderate rains, one may always expect from four to eight severe storms or typhoons, each lasting from a few days to three weeks or more, during which period only the larger ships can live outside the harbor, and all outdoor occupaons on land must be deferred. The coming of the typhoons can generally be fore- ld from twenty-four to forty-eight hours, but the determination of their duration a much more difficult matter. The cessation of traffic during these storms is actically absolute. A storm is often followed in a few days by another of equal verity, and then an interval of a month of cloudless sky may ensue.

Barring the storms, the weather is delightful, especially during the dry season, hen a light breeze blows almost constantly. The following chart accurately gives e range of temperature, the rainfall, and the relative humidity at the station for e year 1905:

Months.	Temperature, mean maximum.	Temperature, mean minimum.	Relative mean humidity.	Rainfall.
				Inches.
uary	89.7	62.4	87.8	....
ruary	89.4	60.2	80.4	....
rch	92.0	64.0	82.8	0.18
ril	95.0	62.7	81.8	6.44
y	96.0	64.4	82.0	8.22
ie	87.9	68.5	91.0	36.52
y	85.8	73.2	90.5	42.98
gust	87.4	78.7	84.0	17.63
tember	87.2	71.9	84.1	28.35
ober	87.9	68.5	77.5	7.70
ember	88.8	67.4	69.5	.33
ember	90.6	70.5	71.3	.25
Average	89.7	67.2	81.8	11.96

he following table for Manila was made from observations covering a period of nty years:

Months.	Temperature, mean maximum.	Temperature, mean minimum.	Relative mean humidity.	Rainfall.
				Inches.
uary	89.78	64.22	77.6	1.14
uary	91.22	64.40	74.2	.39
h	93.74	65.30	71.8	.73
l	95.90	69.44	70.7	1.12
	96.98	72.86	76.7	4.00
	95.00	72.68	81.4	9 75
	92.30	72.32	84.8	15.00
ist	91.40	72.14	84.8	14.22
mber	91.94	72.82	85.5	14.75
ber	91.94	70.52	82.7	7.55
mber	89.96	68.54	82.0	5.87
mber	89.78	64.94	80.7	2.29
Average	92.48	69.08	79.4	6.96

mpare these with the following table for Baguio, Luzon, 4,777 feet altitude, re it is suggested that a naval sanitarium be situated:

Months.	Temperature, mean maximum.	Temperature, mean minimum.	Relative mean humidity.	Rainfall.
				Inches.
ary	75.38	49.28	78.1	0.92
iary	73.94	45.68	77.3	.21
h	78.44	51.08	76.3	1.09
	80.24	51.80	75.5	1.66
	78.80	52.52	83.9	9.42
	77.72	58.10	89.4	15.92
	79.70	56.30	89.4	15.33
st	75.74	54.68	92.2	42.89
mber	74.48	57.20	90.5	17.81
er	75.92	55.40	83.7	6.65
nber	75.56	52.16	79.0	2.75
nber	75.02	54.68	81.2	3.19
Average	76.82	53.24	83.0	9.82

The total yearly rainfall at Olongapo, 143.60 inches, is larger than at most other places in the Philippines and compares with various places as follows: Manila, 76; Baguio, province of Benguet, 118; Singapore, 93; Hongkong, 86; Iloilo, 69; Tokyo, 57; Habana, 51; New York, 44.7; Washington, 42.9; Chicago, 34; San Francisco, 23.4.

High mountains back of Olongapo cause this heavy precipitation of moisture, as they are the first highland which the clouds meet when driven by the southwest monsoon.

The general hygienic surroundings of the place are excellent. The present navy-yard, which is about one-half mile from the town, altho situated on very low land, is drained by a system of cemented ditches which allow an outflow of tide water, and at the same time afford channels for carrying off the excess of water falling during the rainy season. There is a large swamp immediately north of the present navy-yard, which is thoroly drained, so that the water has free access thruout nearly its entire extent. The salt water, together with the rapid changes of surface level, tend to prevent the formation of breeding places for mosquitoes, which otherwise would be a menace to comfort and health. Altho no noxious odors emanate from this swamp nor can any disease at present be directly traced to its close proximity, its presence is nevertheless undesirable, and it should be gradually filled up if a naval station is established here.

The distilling plant furnishes 1,800 gallons of water daily, and is an important factor in preserving the excellent health enjoyed by the officers and men. An artesian well is being driven at the time of writing, and it is hoped that an ample supply of potable water will be obtained.

At no distant date a modern hospital will be required, but now the medical work progresses well with the present facilities. A one-story, parallelogram-shaped building furnishes a ward of 25 beds, with 33,200 cubic feet of air space and ample room for an operating room, dispensary, storeroom, and surgeon's office. In addition a sterilizing room has recently been constructed. An annex, 30 feet from the main building and connected with it by a bridge walk, furnishes space for a dining room for patients, quarters for members of the hospital corps, a kitchen, and pantry. The entire arrangement is only temporary, but with the expenditure of a little money each year for repairs it will answer all needs for the next two or three years.

The climate of this station is considered less enervating than that of Cavite, and this is probably true to a great extent. That regular habits, a temperate life, and freedom from various excesses are important factors for health applies to the Philippines with more than ordinary emphasis, because these health rules are so constantly ignored, and the climate is held accountable for illness and physical breakdown which are due to excesses, which operate for ill health in all countries.

Men who have been in the Philippines a long time often find themselves in a peculiar nervous physical condition, which seems to be a form of nostalgia, due to the absence of friends, good entertainments, and various other factors the men are accustomed to at home. It occurs among men who are recruited from the better class of people and not among those who have had a more or less itinerant history.

In respect to the sanitary conditions on the station ship *Mohican*, nothing can be added to last year's favorable report. The health of the crew is excellent and the ship with its large gun ports and roomy decks affords an ideal place for the health and comfort of the men in the Tropics. The sick list is very small and is now running about three-fourths per cent, with a present complement of 170. In summing up this report, the excellent hygienic conditions of the station merit emphatic mention. Should a large naval station be established here, as is at present contemplated, the healthful surroundings, cool breezes, and absence of many disagreeable features usually found in tropical regions would be most highly appreciated by all the personnel.

EXTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, SAN JUAN, P. R.

By G. PICKRELL, *Surgeon, U. S. Navy.*

During the year there has been a considerable increase in the number of persons quartered in the navy-yard. Yet in spite of this the permanent quarters, which a year ago were noted as inadequate, have not been increased; extra men are at present quartered in tents in the yard. While this tent life is very beneficial in the winter months, yet, in the hot, moist season, it is anything but desirable. In spite of this crowded condition there has been very little sickness of a general character, not one case of infectious or contagious disease originating here during the past year.

Recently the city authorities, by the establishment of special hospitals for the
atment of venereal diseases, and in other ways, have begun to make serious efforts
diminish the prevalence of venereal disease in San Juan; but these efforts, tho
ımising very good results, are too recent to affect the number of cases for 1905.

The following are some of the chief sanitary improvements in the yard itself:
ıter-closets and also improvements in drainage have been installed in the guard-
ıse, and the sea wall along the inner harbor has been raised, thereby stopping the
ıoxious floating refuse of the bay from washing in around the living quarters.
e general plan continues of gradually changing and extending the drainage system
the yard, so that all sewers shall empty on the southern side into the waters of
seaward channel, and none into the comparatively restricted waters of the inner
r.

XTRACT OF REPORT ON THE UNITED STATES NAVAL STATION, TUTUILA, SAMOA.

A. M. FAUNTLEROY, *Surgeon, U. S. Navy.*

he island of Tutuila is situated in latitude 14° 18′ 6″ south and longitude 17° 42′
west. The naval station is located on the eastern end of the island and com-
ıes about 40 acres of land adjacent to the village of Fago Togo.

he harbor is surrounded on all sides by high, precipitous hills which protect it
n the sea, and is approached from the eastward by a comparatively narrow and
ding passage. The entrance and passage, however, are amply sufficient for a
ıel of any size and the harbor itself affords anchorage for five or six battleships.
mail steamer from the United States stops here once every three weeks and on
return trip, also every three weeks, bringing fresh provisions from New Zealand.
er-island communication is by means of a small steamer which meets the mail
ımer, and by smaller craft which make trips at irregular intervals. There are six
nds under the United States Government control and these have a total popula-
of about 6,000 natives and 200 whites.

he medical officer on duty here is the health officer of the port; incoming vessels
boarded and every effort made to prevent infection from outside sources. Lep-
r, malaria, and dysentery are practically unknown in these islands. Scarlet
r, smallpox, measles, and diphtheria are rapidly fatal to the natives, but for the
year the islands have been free from these diseases. Two cases of chicken pox
eloped, which were promptly isolated, and no further cases were seen. Elephanti-
is present in a large percentage of the native population. It is only when it has
lved the scrotum and the mammæ that operative measures have been successful.
umonia, tuberculosis, asthma, dengue, intestinal parasites, yaws, ringworm, and
r skin affections are the most common diseases.

s has been pointed out in previous sanitary reports a large percentage of pulmo-
affections among the natives is due to wearing the American style of dress. The
ve dress consists of a piece of cloth or "tappa," about a yard square, called lava-
, worn about the loins, but in recent years the natives living near the naval sta-
have acquired undershirts, coats, etc. When these become wet or damp from
frequent rains little or no effort is made to dry them and pulmonary diseases
ıe, whereas, formerly, when the natives wore nothing but the lava-lava and
nted their bodies with cocoanut oil, which caused the water to run off imme-
ely, the rain had little or no effect upon their constitutions.

ıe native houses consist of a thatched roof supported by numerous posts and
on all sides. Screens made from woven cocoanut leaves are let down from the
s in bad weather. The floor consists of flat, smooth pebbles and upon these mats
placed for purposes of sitting or sleeping.

ıe Samoans retire and rise early, lounge around the house during most of the
and take but little exercise, and the wonder is that they are in as good physical
lition as one finds them. They are excellent swimmers and oarsmen and the
ve custom of singing while pulling in boats, which develop their lung capacity,
ther with the open air mode of living, keeps them in fairly good condition.
le they take frequent baths and are apparently cleanly in their persons they
a bad habit of spitting in all directions on the floors of their houses which
unts for the spread of tuberculosis among them. While they have been fre-
ıtly warned against the baneful effects of promiscuous spitting, it will take some
to bring them to the point of stopping it entirely.

enereal diseases are uncommon in the natives, altho gonorrhœa is present in a
and not infrequently gives rise to ophthalmia on account of ignorance and

uncleanly habits. Altho the men, women, and children smoke the native tobacco they care very little for alcoholic drinks, the only beverage they seem to fancy being a decoction called "kava" made from the root of a small tree, and the men are the only ones who drink it.

The average temperature in and around the naval station is about 85° F, in the middle of the day, and the nights are always cool and pleasant. The water supply is drawn from a reservoir situated high up between two hills back of the naval station, which has a capacity of 218,000 gallons, and is plentiful and excellent. As pointed out in the last sanitary report the watershed comprises 215 acres, of which 15 are used for the cultivation of taro, and as there is reason to believe that the whole area may sometime be under cultivation it is advisable and recommended that this tract of land be purchased to prevent contamination in the future.

The so-called naval hospital is totally inadequate for the demands made upon it. It consists of a one-story building of four rooms and a kitchen. One room, capable of accommodating four cots, is used as a ward for the sick of the station ship. Another and smaller room is used for storage purposes and contains one cot, while another room is used for the hospital force on duty at the hospital. The operating room is the largest and best lighted of the four. While every effort is made to keep this room clean, a large part of the medical and surgical supplies are stored in lockers in it, and it is also the dispensary, so that it is in constant use during the day and can not be kept in a fit condition for aseptic surgical work. The building is over thirty years old, and being constructed entirely of wood needs constant repair. Five to seven thousand dollars would erect a suitable building sufficient for all purposes, which should contain two sick officers' rooms with a bath, two rooms for the hospital force, operating room, dispensary, storeroom, kitchen, dressing and examining room, office for medical officer, a good-sized ward for the sick, and a laboratory. In the rear of the present hospital is the thatched-roof Samoan house, known as the Samoan hospital, where hospital cases among the natives are treated. If the natives are to be treated it is absolutely necessary that a Samoan house be located near any hospital that is erected, as a native admitted to the hospital is always accompanied by half a dozen relatives to attend to his wants while sick. This custom is considered indispensable by the Samoan and a native house meets the requirements admirably. Another Samoan house is to be built alongside of the present one to accommodate more cases, as at present a number have to be treated in their homes, which are often at a distance from the station. The erection of a new hospital is considered imperative as the sick bay of the U. S. S. *Adams*, located below the gun deck, is intolerable even for a well man in this climate. The sailors' ward should be made to accommodate from 10 to 15 cots, and thus every man needing hospital care could be placed under the best conditions possible in this climate for his speedy recovery. The ground occupied by the present hospital would be an excellent site for a new one, and the two Samoan houses in the rear of the present hospital could still be used as wards for sick natives.

The general sanitary condition of the station has been greatly improved by grading and filling in, so that the mosquito, Culex fagitans, is by no means the pest it was a few years ago. The officers' quarters on the station are all protected by screen doors and windows, and every effort is made, with the limited means at hand, to keep the quarters in sanitary condition, but there is still room for improvement. The new double house recently erected as officers' quarters is admirably adapted to meet all requirements, and similar quarters should be erected on the reservation for all officers and their families.

The ice plant is a godsend to the community and a great comfort to the sick. Too much can not be said in favor of the establishment of an electric-light plant for this station. At present candles and lamps are used, but as they are obviously unfit for this climate it is particularly desirable that a lighting plant be installed. I am reliably informed that the power necessary to run an eletric-light plant could be obtained without additional expense from the boilers of the ice plant and with slight modifications the two could very easily be operated together. If an electric-light plant could be established here not only would all the buildings and the station be thoroly lighted, but the comfort and health of the officers and crew of the station ship would be greatly improved as not only would the electric lights do away with candles, lamps, and lanterns, but the ventilation of the ship, which is poor at best, would be vastly improved by the use of electric fans and blowers.

About 7,000 cases were treated at the hospital clinic during the past year. This practise is growing daily and emphasizes the importance of having a new and better hospital building with a modern operating room, as there is no other place where natives or those on duty here can receive surgical or medical treatment.

During the past year Passed Asst. Surg. E. G. Parker performed the following surgical operations requiring general anesthesia: Elephantiasis-scrotal, 4; removal of testicle, 1; varicocele, 2; hydrocele, 1; lymphadenitis, 3; lipoma of back, 2; deep abscesses, 20; keloid tumor, 1; plastic operation on ear and finger, 1; excision of fibroid tumor of arm, 2; curetage, 1; removal of large ulcers, 4; ganglion of wrist, 2; amputation of finger, 2; removal of cyst from left great toe, 1; paracentisis abdominalis, 1; left inguinal hernia, 1; adenitis, 3. Besides these there were two confinement cases and a number of minor operations requiring local anesthesia.

Since my arrival here on November 15, 1905, to the first of the year, a period covering one month and a half, the following operations requiring general anesthesia were performed: Plastic operation for scrotal elephantiasis with hydrocele and circumcision, 4; abscess left arm, 1; abscess little finger, 1; abscess in axilla, 2; deep abscesses, 6; psoas abscess, 1; excision of epitrochlear gland, 2; lipoma of back, 1; varicocele, 1; hydrocele, 2. The natives do not call for surgical assistance in confinement cases unless some complication exists.

The population of the islands is on the increase. For the past year there were 149 births and 75 deaths.

U. S. S. Adams.—The *Adams* is a wooden ship of 1,375 tons and 800 horsepower. The average number of men on board for the past year has been about 140. The least that can be said with reference to her sanitary condition as a station ship is that she is totally unfit for service in this climate. Not only are the berthing and living spaces cramped and uncomfortable, but there is no ventilating system and no electric lights, so that lamps, candles, and lanterns, which are necessary to light the ship, increase the heat and vitiate the atmosphere to such an extent as to make it very uncomfortable and consequently unhealthy for those who have to remain on board. If this ship is to remain here as the station ship she should be fitted thruout with electrical appliances for ventilating and lighting purposes. The installation of an electric plant on shore would solve the lighting and ventilating problem if the ship could be wired and supplied with fixtures to receive electricity from the station. The sick bay, located forward below the gun deck, is uninhabitable under the present conditions and consequently the sick of the ship, which average 3 per cent of the complement, are cared for in the room set aside for them in the hospital on shore. A roomy ward of at least ten beds should be available for the treatment of the sick of the station ship.

Mild cases of catarrhus epidemicus, obscure fevers, varicocele, hydrocele, abscesses both deep and superficial, orchitis, lymphangitis, and hernia are the most common affections among the crew. Of these, abscesses are very common and oftentimes successive crops will appear in the same individual. In connection with the health of the officers and crew a very beneficial measure would be for the station ship to cruise at least a month out of every year in a more bracing climate such as that offered in New Zealand and Australian waters.

EXTRACT OF REPORT ON THE RECEIVING SHIPS FRANKLIN AND RICHMOND AND THE RESERVE TORPEDO FLOTILLA.

By A. R. WENTWORTH, *Surgeon, U. S. Navy.*

This report embraces the sanitary conditions of the receiving ships *Franklin* and *Richmond*, the St. Helena station, and the Reserve Torpedo Flotilla.

During the last quarter of the year there was a daily average complement of 2,306 men, of whom 243 belonged to the Reserve Torpedo Flotilla. According to the weekly reports, 8,316 recruits and apprentice seamen were received, examined physically, and taken up on the pay rolls. Of these over 5,000 were reexamined for transfer and discharge.

Considering the number of men at the station and the inadequate provisions for the reception of such a large body of men, the percentage of sick has been small—about 1 per cent only.

Attention is called to the diminished number of cases of tonsilitis as compared with previous years; this I believe to be due largely to numerous improvements in sanitary conditions both in and about the barracks. The temporary buildings now used are too small and can not be regarded favorably from a sanitary standpoint, but careful consideration has been given at all times to the comfort of the recruits and others, who have been reasonably contented and happy, owing largely, in my opinion, to the practise of keeping them constantly employed.

The grounds and buildings have been kept clean and the greatest care has been observed as to personal cleanliness among the recruits and men.

The food has been of good quality and sufficient in quantity at all times. The disproportion of accommodations to the number of men is well illustrated in the messing arrangements. All the tables in the mess hall, where over 1,000 men eat, and on the *Richmond*, which accommodates nearly 800, are set twice and often thrice each meal time. About 100 men eat on the auxiliary yachts.

The overcrowding, due in part to the appearance of an epidemic of meningitis at Newport, has been relieved by granting leave to desirable men, rated ordinary seamen, and coal passers, with permission to report at expiration of leave at the receiving ship nearest to their homes for further assignment to seagoing ships.

One of the most important sanitary changes made during the year was the abandonment of the old shed used as a water-closet by the men, which was so close to the mess hall and kitchen as to be a menace to health from exposure of the food to contamination by flies and insects. This was replaced, early in July, by a floating water-closet, now anchored off the bow of the *Richmond*, in deep water and in the tideway. The excreta are carried away by the rise and fall of the tide. It was built by roofing in a float, and has accommodations for about 70 men.

The water used for drinking purposes was referred to in previous reports as being, at least, very suspicious. In August of this year a distilling plant was put in working order. Prior to that time several cases of typhoid fever had developed among the recruits, and probably all who had been a sufficient length of time at this station to contract the disease had drunk Berkley water. The disease at the time was quite prevalent in Portsmouth, Norfolk, and Berkley. Out of 16 cases of typhoid fever from January 1 to October 26, 7 developed after the distilled water was used. Five of these confest to drinking city water from the taps at the clotheslines or at other places.

Analyses of the city water made at various times by the chemist of the navy-yard gave about the same results, viz: Appearance, slight brownish tinge and turbidity, due to a small amount of matter in suspension; total solid matter, 52.5 per milligram; free ammonia, 0.055 per milligram; albumenoid ammonia, 0.16 per milligram; nitrites, none.

About August 1 the distilling plant was installed. There are 3 distillers of 2,500 gallons daily capacity each, or 7,500 gallons total capacity per day. A purifier, or spare boiler, is used before the water is past into the distillers. The water from the distillers is received in 4 cypress-wood tanks of 7,500 gallons capacity each. Three of these tanks are upon the ground, within a short distance of the boiler house; the fourth is located on a platform supported by a tower 40 feet high for distributing water to the *Franklin*, *Richmond*, mess hall, prisons, kitchen, and barracks. This distilled water was estimated to supply about 3,000 men, giving each man 2½ gallons per day for drinking and cooking purposes.

When the distilling plant was first used for filling the tanks, out of 30,000 gallons of water distilled over 20 water bucketfuls, or about 80 gallons, of foul-smelling deposit from animal and vegetable matter were removed.

The conditions in the *Richmond* brig were much improved by placing a two-seat water-closet in a small compartment forward of and communicating with the space where the prisoners are confined. This removed the dangers of the old pail system, with its unpleasant odors during warm weather and its liability to cause disease by flies or other insects.

The barracks buildings were improved by the completion of double floors, by ventilators thru the roofs, and by openings to allow a circulation of air below the lower floors to get rid of the damp and foul air that otherwise found its way into the living quarters. Altho the barracks are now far from satisfactory these improvements are a great advance in the right direction so long as the lack of funds prevented carrying out the recommendation of raising and laying a cement floor beneath the buildings. The roofs of the barracks are being retinned to close openings thru which the rain has added to the discomforts of the occupants.

During the summer the men in barracks were much annoyed by mosquitoes, both Culex and Anopheles. All breeding places were filled in and the pests destroyed as far as practicable. A marked improvement followed the free use of crude oil about drains, in the swamps, and at every possible breeding place.

A requisition for screens for the barracks buildings was made early in the year, but as the material was not obtained until very late and the pests were fast disappearing, it was decided to withhold the use of this material until the ensuing year. Screens have been placed about the air spaces in the water tanks to prevent their use by mosquitoes as breeding places.

Drains of brick and cement have been laid about the buildings and water is now carried off quite rapidly after heavy rains. The roads about the station have been improved by placing crusht stone upon them, which will in due season render them hard and free from the clayey condition formerly existing in wet weather. A crematory for objectionable refuse was extemporized from an old boiler and is in daily use to keep the grounds clean and dispose of unsightly waste.

As during the last few months smallpox made its appearance in this section and also existed in many centers from which recruits were received, constant vigilance was necessary to protect the station. Three cases among prisoners and recruits were discovered and promptly sent to hospital. Careful supervision and vaccination were thoroly carried out and all persons exposed disinfected.

As a means of precaution, a camp with accommodations for 12 persons was established outside the limits of the buildings on the station for suspicious cases. This was in daily use for treating scabies and other diseases. Most of these cases were among deserters, stragglers, and recruits.

The recruits have been drilled in first aid to the wounded, resuscitation of the apparently drowned, rendering assistance in cases of accidents generally, and extemporizing splints and dressings.

The work of the hospital corps personnel, as a whole, has been very satisfactory. With few exceptions their work has been exemplary and they have shown great aptitude and very thoro training.

The washhouses being too small for the number of men at the station, a platform was made under the clotheslines on the drill grounds, and pipes with faucets led to both sides to furnish fresh water for washing hammocks, clothing, etc.

The following changes would improve the sanitary conditions at this station:

As soon as possible suitable buildings with sufficient accommodations for at least 3,000 men should be built.

The buildings should be at least 3 feet from the ground and a dry base secured by cement or concrete.

The urinals located in the temporary barracks should be removed, as recommended in last year's report, and placed in additions accessible to each floor of the buildings.

A modern water-closet should take the place of the temporary float now used.

The "brigs" should be enlarged to twice their present capacity.

The grounds about the station should be raised 2 or 3 feet by filling in and bulkheads placed on the water front.

A recreation hall for drills and for use in bad weather would add to the comfort of the men.

A small post hospital could be used with advantage to take the place of tents now used, as the question of keeping those in the detention camp comfortably warm during very cold weather has been a source of much worry.

The wardroom of the *Richmond* could be made more comfortable during the summer months by placing large stern windows in the space now used as a pantry and storeroom. This would also give better ventilation and light.

The floor connecting the kitchen and mess hall should be replaced by filling in the damp space beneath it, which at times contains considerable standing water and becomes a breeding place for mosquitoes.

Summary of work for the year.

Number of recruits and other men received on board	8,316
Number of recruits reexamined	3,464
Number of applicants for enlistment examined	632
Number of applicants for enlistment accepted	294
(Number enlisted, 302.)	
Admitted (1,695) and readmitted (90) to sick list	1,785
Patients invalided to hospital	368
Patients invalided from service	75
Total sick days	6,935
Percentage of sick for year	1
Average complement for year	1,893.85

The dental work has included men from cruising ships temporarily at the yard, the marine barracks, naval hospital, and Reserve Torpedo Flotilla.

While the *Kentucky* and *Iowa* were at the yard in December, 1905, bulletins were posted on each ship stating that all men, irrespective of conduct class, would be allowed to come to this station for dental work. As a result 93 men from the *Iowa* and 68 from the *Kentucky* came for treatment.

In view of the fact that a thousand men are about all a dentist can look after comfortably, and considering that from 4,000 to 6,000 have access to the dentist here, the difficulties under which he labors can be appreciated.

Dental work for the year.

Number of admissions for treatment	3,207
Number of men treated	2,406
Number of worthless teeth extracted	539
Number of teeth filled with cement	698
Number of teeth filled with amalgam	543
Number of teeth filled with gutta-percha	70
Number of abscessed teeth treated; roots filled	140
Number of teeth devitalized; roots filled	120
Number of teeth restored by plates	240
Number of teeth restored by bridge work	276
Number of gold crowns inserted	95
Number of porcelain crowns inserted	30

The mess hall of the Reserve Torpedo Flotilla has been much improved by placing the water-closets, urinals, and shower baths in a building at the end of the dock, and by removing the partition between the two rooms to give more floor space.

The *Atlanta* is now used as a station ship, where men and officers are quartered.

EXTRACT OF REPORT ON THE U. S. RECEIVING SHIP HANCOCK.

By R. P. CRANDALL, *Surgeon, U. S. Navy.*

The sanitary condition of the ship and the health of the officers and crew have been excellent. Overhauling of the heads and closets and putting in place new tiling has made a decided improvement in these places. With large roomy decks, immaculately clean and thoroly ventilated, naturally as well as artificially, the ship makes an ideal home for the men. One small compartment is used solely for the baggage of men returning from foreign stations and elsewhere, as there is no other available place to stow it. A small building for this purpose should be built somewhere on the cob dock, and some form of disinfecting apparatus installed therein. When it becomes necessary to disinfect articles, it has to be done in the steam steering room, which is neither satisfactory nor desirable.

A serious menace to health on the cob dock is a large open pool, which at times during the summer heat becomes very offensive. It should be filled in. The dock itself is sinking in places and becoming undermined. This settling has caused the walls of the men's closet on the dock to crack in several places.

The new prison is rapidly approaching completion, and will be a vast improvement on the old, sodden, overcrowded building now in use. The 60 cells will be arranged in tiers, with room nearly to double that number if necessary.

Following is a summary of the persons examined for enlistment during the year: Total number examined, 1,514; accepted, 1,085; rejected, 407; rejected for color blindness, 22.

EXTRACT OF REPORT ON THE U. S. RECEIVING SHIP INDEPENDENCE.

By C. P. KINDLEBERGER, *Surgeon, U. S. Navy.*

Several important sanitary recommendations have been carried out since 1904, and the resulting benefit to the crew has been very noticeable. The bath house and laundry and the washhouse were raised and moved to a new foundation of piles on the outer side of the long dock parallel to the ship. These buildings are now located over the tide water, side by side, with a wide walk between them, and are separated from the ship by a new dock. The bath house and laundry has been much improved by the addition of a large ventilator and skylight; a new floor was also laid in this building, new galvanized iron washtubs installed, and the steam dryer, shower baths, and piping were thoroly overhauled. The washhouse received some needed repairs and both buildings were cleaned and painted. The old foundation of these buildings and much of the swamp land, tules, between the ship and the shore have been filled in with clean soil taken from a hill in the yard and from the location of ways for the new collier. This improvement has nearly abolished the disagreeable odor of marsh gas and decomposing soap that used to emanate from the marshy area near the ship. Forward on the port side of the gun deck an additional door has been cut thru the ship's side. From this door a new covered gangway for the use of the men has been led to the nearby dock. Directly connecting with this gangway a board walk has been built across the filled-in tule land. Important sanitary changes have been accomplished on the upper deck as the result of recommendations made by the medical officer and the captain. By a series of crossbeams and supports, 110 excellent hammock billets have been provided for the men on this deck where none existed before. Amidships, the old and useless glass skylights were removed and the space floored over; the ditty-box racks were then placed fore and aft in the middle line. These changes have given considerable more deck room and have greatly relieved the congestion of the sleeping quarters below.

Several additions to the system of ventilation were recommended and completed during the year. Two galvanized iron pipes (11 by 21) were carried to the bagroom from holes cut on either side of the stem. In each ventilator an electric fan was placed to be used either for exhausting or supplying air. This arrangement has much improved the ventilation of the bagroom and neighboring storerooms. A round galvanized iron pipe, 15 inches in diameter, was brought from the roof to the paymaster's storeroom on the after orlop deck, and an electric fan constantly blows fresh air thru this pipe. By this sanitary arrangement the storerooms and the surrounding quarters for servants are much better ventilated than they were before.

The general health of officers and men for the year has been exceptionally good. The total sick days were 435, a large decrease when compared with a total of 1,187 for 1904. The steam-disinfecting boiler was constantly used for the sterilization of clothes and bedding.

The services of the dentist have been again much appreciated by "all hands" and by men from other ships visiting the yard. The teeth of recruits have been examined, the necessary extractions made, and advice given as to the care of the teeth and in regard to filling, crowns, and bridge work.

Many mild cases of scabies were treated during the year, but none were admitted to the sick list; the treatment included the sterilization of underclothes by steam and frequent scrubbing of seats in the "heads" with a solution of bichloride and vinegar.

Very few mosquitoes have found their way aboard ship during the warm weather, but flies are troublesome, especially in the bake shop and galley compartment. To remedy this condition it was recommended that the area be inclosed with fine wire netting. The material has already arrived and will soon be put in place.

The U. S. prison ship *Manila* was put in commission on August 10, after appropriate alterations, and moored alongside the dock, bow inshore, ahead and at right angles to the position of the *Independence*. The ship is heated by steam, lighted by electricity, covered by an awning, and supplied with Vallejo water; she is painted white and spar color outside, white inside, and the prison deck is shellacked; 36 large airy cells have been built on the berth deck and all have air ports except three; by using the old wardroom at least 14 more cells could be made. The officer in charge lives on board and has good quarters in the after deck house. The prisoners are inspected daily by the medical officer, and the sick are brought on board the *Independence* for treatment There is no regular crew assigned to the ship, but masters-at-arms, sentries, and other men necessary for the care of the prisoners and the cleanliness of the ship are furnished by the *Independence*. The heads and bathing facilities are ample. The prisoners take a bath and scrub clothing and air bedding twice a week; no food is cooked on board but is brought from the galley of the *Independence*. All grades of prisoners are confined on the *Manila* except those sentenced by a general court-martial. The old brigs on the *Independence* have been turned into storerooms.

The civil engineer of the yard has asked for an appropriation for the construction of a bowling alley and band stand in the grounds of this ship; he has also recommended that oil burners be fitted to the present steam-generating boiler belonging to the ship. This arrangement would stop the large amount of smoke and coal dust which is almost continually blowing over the ship and do away with the frequent handling of coal.

Improvements in the grounds have continued; many of the trees and much of the grass planted last year have failed to grow, owing to the saline nature of the soil. The captain's garden and the crew's have been extended, more trees, grass, and flowers planted, new athletic apparatus built, and electric lights placed at intervals along the walks and roads. Two new roads have been constructed, a new board walk has been built across the athletic field, and the old roads and running track have been oiled and rolled. The men have made good use of the handball courts, tennis court, and running track during the year, and have played a number of games of base ball and foot ball on the athletic field. A stage has been fitted up in the upper floor of the drill hall for the use of the men, and a number of dances have been given by the crew in this building.

There were 492 recruits received on board during the year; all were of good physique and none were surveyed for discharge from the service. Of 286 men examined on board for enlistment, 224 were accepted and 62 rejected. The average complement was 592.

EXTRACT OF REPORT ON THE U. S. RECEIVING SHIP LANCASTER AND AUXILIARIES.

By O. Diehl, *Surgeon, U. S. Navy.*

The health of the command has been very good, and there has happily been no recurrence of the epidemic of two years ago. This is probably largely due to the fact that the complement has been small, the average of the year having been 473.3, and that overcrowding has been avoided. The complement includes every one carried on the pay rolls of the *Lancaster*, the crew, however, being distributed among this ship, the *Panther*, and the *Terror*, and, during the summer months, the dormitories in the camp. In addition, about 40 men are generally attached to tugs and launches and on detached duty. This reduces the number actually living on the *Lancaster*, so that berthing on the berth deck is unnecessary. As the crew is distributed among several ships they are referred to in detail.

Lancaster.—Since the last annual report this ship has been equipped with a ventilating system, consisting of one blower, which supplies the berth deck with abundant air; the deck and storerooms below this deck are without artificial ventilation. The lighting is good and the brig is commodious. The head is well placed, with ample accommodations. In fact, all departments of the ship appear to have ample room and be well arranged except the medical department. There is no sick bay, properly speaking, in the ship. A small compartment on the port side of the berth deck is set apart for the sick. It is 15 feet long by 9 wide, with a cubic air space of about 1,100 feet. Not more than three hammocks can be comfortably slung, and it lacks cots, closet, bath tub, and other conveniences. This room is at present used solely for temporary isolation of contagious cases for transfer to hospital. It is located between the chaplain's office and the engineer's log room, and, in certain cases of contagion, may not be sufficiently isolated for safety.

All other cases are at present kept in the sick bay of the *Panther*, which answers the purpose; but as the ship is moored on the opposite side of the pier from the *Lancaster*, more or less inconvenience and delay in visiting the sick and in treating emergencies arise. It would be far preferable to have the sick bay, dispensary, nurses, and medical officers on one ship. With the ample space in the *Lancaster* it would seem that room for this purpose could be found, especially as the *Panther* may at any time be removed or used for other duty. The space for the examination of recruits is entirely too small. It appears that the present pay office, formerly part of the recruiting office, was taken away, leaving a room only 12 by 7½ feet. As this space is partly taken up by a desk, table for typewriter, and scales, very little room remains for the proper examination of recruits. The dispensary adjoins this room and, in order to obtain sufficient distance for the examination of vision, applicants are stationed in it, which interferes with the compounding of prescriptions and other dispensary work. Physical examinations are made almost daily, and it must be evident that this important work is badly hampered by lack of space. Clerical and other work must be suspended during physical examinations. A small room containing a bath tub, forward the recruiting office, is useless in its present location.

Panther.—This ship is auxiliary to the *Lancaster* and receives the overflow from the latter. The number kept on board varies from 20 to 200, depending on the complement. It is equipped with a large sick bay containing six cots with room for additional hammocks, and has a bath room, containing tub and closet. As already stated, all the sick, except those requiring isolation, are kept here.

Terror.—The *Terror* is in ordinary and has about 30 care takers on board, forming part of the complement under consideration.

The Camp.—The barracks and mess hall forming the camp on the east end of the island has been previously described. During the summer some of the crew have been quartered here, at no time, however, exceeding 100 men. At present there are five care takers in charge of the place.

Recruiting.—During the year 285 applicants for enlistment were examined, 185 were accepted and 100 rejected.

EXTRACT OF REPORT ON THE U. S. RECEIVING SHIP PHILADELPHIA.

By J. M. Brister, *Passed Assistant Surgeon, U. S. Navy.*

During the past year this ship has been in exceptionally fine sanitary condition, as is shown by the small percentage of sick. The only communicable diseases met with have been thirty-seven cases of scabies and one of diphtheria, the latter probably contracted outside the navy-yard. Scabies has apparently been eliminated by thoroly sterilizing the civilian clothing of all recruits and bathing with carbolic solution all suspicious cases.

The percentage of sick for the year was 0.775.

EXTRACT OF REPORT ON THE U. S. RECEIVING SHIP WABASH.

By J. E. Gardner, *Medical Inspector, U. S. Navy.*

There is but little change to note in regard to the conditions affecting the health and comfort of the crew on this ship since the last annual report. The berth, gun, and spar decks are now well protected from dampness by shellac. By connection with the electric blowers ventilating the cells of prisoners on the orlop deck, the bag rooms are supplied with pure air. A shaft thru the after end of the wardroom gives a circulation of air in the storerooms aft. Wire screening around the officers' galley, carpenter's shop and paint shop, and sheathing two sides of the crew's galley conduce to a quicker escape of heat and a better circulation of air on the gun deck. The installation of a drying room on the spar deck has been a great improvement upon the hanging of wet clothes about the decks, which gave rise to much dampness and discomfort.

A sink fitted with running water has been placed in the sick bay for use in dressing venereal cases. It is a decided convenience as well as an aid in limiting the accidental spread of venereal diseases. The dock in front of the ship has been cleared of refuse and rubbish, and furnishes a small but neat exercise ground for the use of the crew. There has been no outbreak of a serious nature during the year.

EXTRACTS OF REPORTS ON CRUISING SHIPS.

EXTRACT OF REPORT ON THE U. S. S. ALABAMA.

By C. J. DECKER, *Surgeon, U. S. Navy.*

The health of the officers and crew of the ship for the year 1905 was excellent. With an average complement of about 660, there were but 356 admissions to the sick list, which gave 2,043 sick days, with 48 cases sent to hospital and 5 deaths. The deaths were not in any way chargeable to local sanitary conditions, as 2 were due to suicide, 2 to drowning, and 1 to wood-alcohol poisoning. The relatively small number of sick days for the year, as compared with the number for the preceding four years, is probably due to less exposure to climatic extremes. The stay in the Tropics during the winter was the shortest since the formation of the battle ship fleet, and the cruising in the North Atlantic was arranged to keep the ship subjected to the best climatic conditions. The month of December was spent in New York in exceptionally mild weather as is shown in the remarkably low sick list for that month and locality. After careful consideration it seems evident that the number of sick days on battle ships stands in direct ratio to the number of days of exposure to tropical and northern winter extremes. The ship was 325 days in port and 40 at sea. The days in port include the drill days at Culebra, Guantanamo, Pensacola, and Provincetown. The treatment of the 356 patients actually carried on the sick list for the year represents but a small part of the work really done; for instance, 27 cases of scabies occurred. A tent was kept in commission forward on the gun deck most of the time. Each case on detection was immediately isolated, stript, and annointed with sulfur ointment and put in clean clothes. The annointing was repeated twice daily for four days. The patient's entire outfit of clothing and bedding was then taken and boiled for six hours.

The changes in structural arrangements urged in the past for the betterment of the sanitary and hygienic condition of the ship received some attention during the year. The hammock nettings were removed from the forward end of the galley and two ports cut thru the superstructure bulkhead. These changes added greatly to the comfort and energy of the galley cooks and removed bedding from the proximity of culinary operations. The bakery was improved by the addition of a mechanical dough mixer. From observation of its work it is not so thoro as good hand kneading, and is therefore more a labor-saving device than a sanitary measure. The cold-storage space, which was designed for a complement of 490 officers and men, is too small for the present force of 670.

No change has been made in the method of disposing of the sewage now drained into the sanitary tank located between the starboard engine room and the fireroom. This tank has frequently been condemned as insanitary by all officers coming in contact with it. It is a steel box about 5 feet in general dimensions, entered from a manhole plate in the side for cleaning purposes. It receives the slops from the wardroom and warrant officers' pantries and the drainage from the baths for the officers and the fireroom force. This water, containing grease and other organic matter from the pantry sinks, together with the coal dust, dirt, and excrementitious material from the baths, collects in the tank until it is full. Then the water and such of the material as has not settled to the bottom is pumped overboard. The suction pipe extends from the top of the tank to within 6 inches of the bottom. The objections to this arrangement are: It is situated in a locality where the temperature is seldom under 106° F., usually averages higher, and conduces to rapid fermentation and decomposition. It can not be pumped dry and the 8 or 10 inches of sludge on the bottom decomposes quickly and causes frequent regurgitations of noxious gases thru the traps into the officers' pantries and bathrooms. The quantity of material in the tank is observed by a gage glass, and the engine-room force try to pump it out when it is nearly full. At all events it is pumped out once every watch. Occasionally from oversight, or thru the plugging of the gage glass with solid material, or the sudden accumulation an unusual amount of sewage, there is a backflow of sewage into the bathrooms. e manhole plate is removed on Fridays and men are sent in to dip and scrape out e sediment. Much of it is suspended by sharp agitation and pumped out, but the sidue is carried away in buckets. This work is naturally very disgusting and ienever possible it is assigned to extra-duty men. It is self-evident that such a stem is insanitary, repulsive, and undesirable. Some of the methods that have en advanced for the removal of this sewage are as follows: To lead the various pes into a common conduit that would empty into the outboard delivery of the xiliary condenser; to connect a similar pipe to the overboard discharge of e flushing system; to install the system now working on the *Kearsarge*, which nsists of an automatic sewage pump that begins to work when the 3 or 5 gallon ceiver is full.

The ventilation of the part of the ship within the casemate is excellent, the air ing supplied by two large electric blowers. The air to the after and forward living spaces and storerooms is supplied by steam blowers that are entirely inadequate. sts of the amount of air forced in by these blowers were made by the construction partment at the League Island Navy-Yard in 1904. It was found that in no case is the air sufficient for local requirements, and, in some instances, the most delicate emometer could detect no current. Plans were then made for the installation of ctric blowers of ample power, but none were installed.

EXTRACT OF REPORT ON THE U. S. S. ALBATROSS.

By F. E. McCullough, *Surgeon, U. S. Navy.*

At the beginning of the year the *Albatross* was still engaged in deep-sea exploran of the eastern Pacific under Prof. Alexander Agassiz, which was begun in the eceding October.

The work assigned to the ship for the summer was aiding in the construction of a lmon hatchery at Yes Bay, Alaska. This duty having been concluded, the vessel turned to Tacoma, Wash., in October and was docked. After coaling at Union ty, British Columbia, and taking dredge hauls off the Fraser River, she proceeded Sausalito, Cal., and remained there until the end of the year.

The total number of sick days for the year was 246, with 1 death from pneuonia. The average complement was about 74. From this it will be seen that the alth of the officers and crew was very good. The sanitary condition of the ship as excellent.

EXTRACT OF REPORT ON THE U. S. S. BALTIMORE.

By R. Spear, *Surgeon, U. S. Navy.*

During the past year the general health of the crew was very good. The ship mained most of the time in a temperate climate. The men are far healthier in pearance than those of other crews who were obliged to pass much time in the hilippines, and the greater dash, spirit, and strength of the *Baltimore's* men was roved by their superiority in numerous athletic contests.

The exhaust system of ventilation in use on this ship is entirely out of date. The cilities for bathing for the deck force are very poor, and the installation of suitable iower baths would be of decided hygienic benefit. The general mess system has een managed very efficiently, and the men have been provided with meals of cellent quality and great variety.

All liberty parties were inspected and the men encouraged to take antiseptic rethral injections on their return to the ship after exposure. The result was that ie men applied early for treatment for venereal infections and, considering the orts visited, the number of venereal cases was small.

The junior officers' quarters being unoccupied were assigned to the medical departient as an additional sick bay. The forward sick bay in the bow of the ship is very oisy, and as it is a passageway to the paint locker and forward hold no privacy can e maintained, so cases of severe sickness are treated in the after sick bay, which is lso used for operative purposes. A large copper sterilizer, 36 by 20 inches, has been onstructed on board ship, and with the small sterilizer will be sufficient to sterilize he instruments, dressings, sheets, gowns, etc., for an abdominal operation.

EXTRACT OF REPORT ON THE U. S. S. BOSTON.

By D. B. KERR, *Passed Assistant Surgeon, U.S. Navy.*

January 1, 1905, found the Boston in the harbor of Panama, Republic of Panama, from which port she sailed on February 7, 1905.

During the year the ship visited Acapulco, Mexico; San Francisco, Cal.; Mare Island, Cal.; Honolulu, Hawaii; Portland, Oreg., and many of the ports in Puget Sound. The ports visited were very healthy, with the single exception of Panama.

During the year there were 1,605 sick days, a daily average of patients 4.40, and a percentage of sick 1.41. In the month of January there was an outbreak of yellow fever on board while the ship was in the harbor of Panama. It began on January 19 and within three days six cases developed. The original source of infection could not be traced definitely, but *Stegomyia* were found on board, especially in the wardroom, and larvæ in some of the division tubes in which a little water had been kept to preserve them. Of the six infected the medical officer of the ship and a mess attendant died. The ship was disinfected with sulfur and pyrethrum while at Panama and no cases occurred afterwards. There has been no epidemic disease on board since that time.

The cabin, wardroom, and warrant officers' quarters are very comfortable, even in the Tropics, the air space being good and the ventilation sufficient. The crew's spaces seem sufficient with the exception of the quarters for the marines, which are overcrowded and without sufficient ventilation, especially at sea. When there is much sea running the forecastle is wet and the hatch has to be closed, causing the air in the forward compartment to become foul and stagnant. The ventilation of the ship taken as a whole is fairly good. The present cold storage is scarcely sufficient for the crew.

EXTRACT OF REPORT ON THE U. S. S. BROOKLYN.

By J. M. STEELE, *Medical Inspector, U. S. Navy.*

The *Brooklyn* left Pensacola March 27 and went via Guantanamo to Port au Prince, Haiti.

Port au Prince deserves its insanitary reputation and suggests slothfulness at almost every turn. Several small streams pass thru the town to empty into the bay, and furnish all necessary conditions for breeding mosquitoes.

From reliable information it is believed that yellow fever, with a low death rate, prevails the whole year, chiefly among children and young people. These mild cases infect the mosquitoes, which transmit the disease to nonimmunes. While Port au Prince might appear to visitors as free from yellow fever, it really harbors the disease in its most insidious form. For this reason strangers should at all times take every precaution against infection. Under the conviction that yellow fever is endemic in Port au Prince everything possible was done to prevent its introduction on the *Brooklyn.*

In Monte Cristi there were several cases of typhoid fever at the time of our visit, and there had been many more. Rain water and water from a river about a mile distant are used by the town for drinking purposes. Cases of typhoid fever in hamlets near the streams feeding the river were said to have been the cause of the disease in the town. Monte Cristi is otherwise a healthful town. Situated in the course of the trade winds it is comparatively cool, except during August and September, when the trade winds give place to storms and hurricanes. In the towns of Haiti and Santo Domingo venereal diseases abound.

The *Brooklyn* brought the remains of Capt. John Paul Jones, U. S. Navy, from Cherbourg, France, to the Naval Academy, Annapolis, Md. It is reported that an interval of 113 years intervened between the date of his death and the necropsy which showed pathological lesions of the disease to which history attributes his death.

The ventilation of this vessel is unsatisfactory from a faulty arrangement of the air ducts and the bad situation of the blowers. At sea especially, when the ports are closed, the air on the berth deck becomes heavy and has a bad odor, and this is most marked in the compartment containing the engineer's wash room. The steam pipes are so arranged that the wardroom and the cabins can not be heated independently, and those supplying the steering engine pass under several of the officers' rooms and make them uncomfortable and at times unbearably hot.

The aggregate number of cases of sickness was 2,458, of which 885 were due to venereal disease. The ship was at Port of Spain, Trinidad, from December 14, 1904, to January 9, 1905, and it was at this port that most of the venereal disease was contracted.

EXTRACT OF REPORT ON THE U. S. S. CELTIC.

By J. G. FIELD, *Surgeon, U. S. Navy.*

The sanitary condition of the ship and the health of the crew have been excellent.

There is no artificial ventilation, but the living spaces and holds are thoroly ventilated by natural means.

The commanding officer's toilet and bathroom should be taken out of the wardroom and moved forward on the starboard side just outside the wardroom bulkhead.

The wardroom officers' toilet should be moved from the present bathroom and placed outside the wardroom bulkhead on the port side.

The heating apparatus in the wardroom should be increased in size, or radiators be placed in all the rooms, as the present heating system is not adequate to the needs of health and comfort.

A folding bunk should be placed in the dispensary for the hospital steward, and the bath tub should be moved from the center of the bathroom to one of the bulkheads to allow space for the operating table. The room would then be ample for operative work, which, with the present arrangement, is almost impossible.

The "heads" for the men are under the forecastle and are fairly satisfactory, but could be improved by better ventilation from above and by a different shaped trough for the dejecta.

EXTRACT OF REPORT ON THE U. S. S. CHARLESTON.

By M. F. GATES, *Surgeon, U. S. Navy.*

The *Charleston* was placed in commission October 17, 1905, and has since been more than half the time at the navy-yard, Norfolk, Va., undergoing the necessary work of completion and alterations. With the exception of a trip to Guantanamo, Cuba, and return, no cruising has been done.

The general plan of the ship does not differ greatly from that of the armored cruisers of the *West Virginia* class. The living space is ample. The arrangement of the ship is generally satisfactory. None of the wardroom staterooms on the gun deck has any artificial ventilation and the three rooms forward on the starboard side, abreast the engine-room trunk, are greatly overheated, especially when the ship is under way in the Tropics. They should be provided with air ports of the large square type similar to those now in place in two of the berth deck group of staterooms. Numerous minor changes have already been made and others are in progress or contemplated.

There is a general-mess pantry located on the main deck amidships and equipped with dishwashing machinery, which, as yet, has not yielded satisfactory results. Its use has been suspended for some time and a slight change in the mechanism will be made. No outlet was provided originally for the great volume of steam produced in the use of this machinery, but the cutting of a ventilation hatch has partially remedied this defect.

The water-closets and wash rooms appear to be satisfactory, but probably from defective workmanship, parts of the Mosaic tile flooring has in some of them disintegrated and will have to be relaid. A drain should be placed in the central passage of the crew's wash room.

There is but one ice machine and it is located in too close proximity to the boiler and engine rooms. During our brief stay in the Tropics it proved unequal to the task of keeping the cold-storage rooms at a sufficiently low temperature to prevent some loss of fresh provisions. Two ice machines should be provided, each capable of caring for all cold-storage rooms, so as to avoid loss of provisions when, as is frequently the case, one machine is out of order.

Increased exhaust ventilation for the blacksmith shop has been recommended. At times this room is so filled with gas from the forge as to make it dangerous for the men to work there, and a considerable amount escapes through the living spaces of the ship. The difficulty is intermittent, varying with atmospheric conditions and largely with the boilers in use at the time, as the exhaust is thru the funnel jacket space.

Glazed port shutters for the gun ports in the wardroom mess room would add much to the comfort of the officers. Such fittings are provided in the cabins, but not elsewhere.

A steam connection and hose in the crew's water-closet is most serviceable in reducing the infection of the men with scabies and pubic pediculosis, which, there is good reason to believe, are often transmitted in the naval service by the seats of the water-closets. A stream of live steam is an efficient disinfectant, is quickly applied, and leaves a clean surface.

The ventilation of the crew's water-closet on the gun deck, and of the brigs, paint lockers, isolation ward, and other berth-deck spaces immediately below the crew's water-closet is satisfactory when the ship is in port or at sea in calm weather, but in bad weather water is taken over the bows to such an extent that to prevent ruining the blowers or carrying away the cowls, it is necessary to unship the cowls and close the openings with plates. All the artificial ventilation is thus cut off from this part of the ship when it is most needed, and when it is impossible to allow air ports and other avenues of natural ventilation to remain open, and when free circulation of air is impeded by hoods on the hatches. Air ducts, both supply and exhaust, from this part of the ship should be carried far enough aft to connect with ducts leading to cowls on the superstructure deck, so that they might remain open in all weather.

There are two scuttle butts of the usual type fed from a gravity tank on the upper deck. Owing to the ineffectiveness of the ice machine it has not at all times been possible to supply cooled water.

Experiments are now in progress which, it s hoped, will yield a solution of the problem of avoiding mouth to mouth use of common drinking cups and its serious dangers of transmitting disease, by doing away with cups entirely and adapting the bubbling-spring idea to ships' use.

On the berth deck about 70 feet from the bow is located the sick bay with the operating room and dispensary on the opposite side of a passage, and the isolation ward somewhat farther forward. The sick bay was originally fitted with twenty-two berths. Additional space near the door was greatly needed, however, for handling the large number of men attending sick call and for other routine work, and four berths near the passageway and entrance were removed.

A cargo light, a pipe support for which is about to be installed, is here a necessity. A specially constructed portable hand light, which has a reflecting metal shield and which hooks on an adjustable bracket, was conveniently placed on a bulkhead and is most serviceable for eye and ear work and close examination of skin lesions, mouth and throat conditions. Designs for a cup receptacle and for a tray rack for use with the navy standard sick-bay berths were submitted to the Bureau. Much annoyance is caused by the spouting of water from the drain pipes of the stationary wash basins, and it will be necessary to keep the valves in these pipes closed in all but very calm weather.

The bathroom has a floor of mosaic tiling and can be kept in excellent condition. A temporary wooden rack has been placed there for brooms, etc. When practicable, one of metal should be substituted. A broom rack and receptacle for cleaning gear, urinals, and bedpans might with advantage form part of the usual equipment of sick-bay bathrooms. An objectionable feature of the ship's design is that in order to reach the central station and forward magazine it is necessary to pass thru the sick bay. The operating room is of good size and conveniently located. A Frink reflector and navy standard steam sterilizers for dressings and instruments will be installed as soon as they are received. The dispensary adjoins the operating room, but does not communicate with it directly. In accordance with recent practise this room is not utilized as sleeping quarters for the hospital steward, and he is provided with a folding berth in a compartment with other chief petty officers. The isolation ward is fairly well located and contains four berths. A water-closet should be attached to the isolation wards of ships. When the equipment of the medical department of the ship is completed the facilities for the care of the personnel under ordinary conditions will as closely approach the ideal as is possible in the environment.

EXTRACT OF REPORT ON THE U. S. S. CHATTANOOGA.

By R. T. Orvis, *Surgeon, U. S. Navy.*

The health of the officers and crew has been excellent; no epidemic nor contagious disease occurred. The percentage of sick for the year is less than 1 per cent.

The sanitary condition of the ship has been very good. The ventilating system in the wardroom has been changed from the exhaust to plenum, thereby greatly improving the conditions aft, especially in the Tropics. It is recommended that the exhaust system of ventilation used in the other living spaces of the ship be changed to the supply system. The plumbing thruout the ship is very poor and a source of constant annoyance, especially in the water-closets and drains. The ice and cold-storage plant has proved inadequate in warm climates, and its capacity should be doubled.

The location of the sick bay is extremely unsuitable and very noisy, as the scuttle butt, in close proximity, is the meeting place for all hands. The engineers' machine shop is directly below the sick bay on the berth deck. Shaft hangers are suspended from the deck beneath the sick bay. When the power tools are worked the noise and vibration are so great that it is very difficult to conduct the most simple physical examination. The evaporators on the berth deck below the sick bay make it very hot and uncomfortable in the Tropics.

EXTRACT OF REPORT ON THE U. S. S. CHICAGO.

By W. S. Horn, *Assistant Surgeon, U. S. Navy.*

During the year ended December 31, 1905, the health of the crew of this ship was good and, with the exception of one case of diphtheria, mentioned below, no contagious diseases of a serious nature occurred.

On the 1st of January, 1905, Admiral Goodrich and staff were transferred from the U. S. S. *New York* to this vessel, the fleet being at that time at Valparaiso, Chile.

On the 2d of January the *Chicago* proceeded north from Valparaiso stopping at Callao, Peru, and Acapulco, Mexico, and reaching San Diego, Cal., on the 2d of February. March 15 she proceeded to Magdalena Bay, Mexico, for target practise, after which she left for Long Beach, Cal., reaching there April 8. While at Long Beach several cases of tonsilitis appeared and one case of diphtheria, verified by culture on blood serum. Smears from the tonsilitis cases gave negative results. The diphtheritic case was extremely mild, and as it was impracticable to transfer the patient to a hospital, he was isolated and treated on board. The various water-tight compartments on the berth deck were successively closed and fumigated with formalin, all clothing being removed, cleansed, and aired. Attempts to trace the source of infection in the case proved unavailing as Magdalena Bay, the last point visited by the ship, was entirely free from all contagious diseases.

On the 16th of June the *Chicago* reached Portland, Oreg. After making a very complete cruise thru the inland passages and visiting most of the Alaskan ports she returned to Bellingham, Wash., on July 22, where she received orders to proceed immediately to San Diego, Cal., to render aid to the victims of the *Bennington* disaster.

The sick bay forward is well lighted and ventilated, both artificially and naturally, and is fitted with eight folding bunks. On the port side there is a bathroom and pump water-closet. The latter, with its complicated arrangement of valves, is somewhat unsatisfactory, owing to its liability to leak and get out of order. The wash rooms for the engineer's force on the berth deck are fitted with iron basins emptying into an iron trough, from which a drain carries the slops into an inaccessible wellhole in the corner of the wash room, whence it is drained overboard. The arrangement was found to be objectionable, owing to the difficulty of thoroly cleansing the parts and the consequent accumulation of an ill-smelling deposit. This condition has been much improved by the partial removal of the iron plate forming the front of the washstand, whereby the drain well may be more easily reached and cleaned. Abaft the wardroom are the two water-closets and two bathrooms for the use of the wardroom officers. Much annoyance has been experienced on account of the pump water-closets, which need the constant attention of the plumber, owing to their liability to get out of order.

EXTRACT OF REPORT ON THE U. S. S. CINCINNATI.

By W. H. BUCHER, *Surgeon, U. S. Navy.*

The general sanitary condition of the ship has been good, and no epidemics nor diseases traceable to bad sanitation have occurred.

When the ship went in one week from the Tropics into the severe winter weather of northern China, the crew stood it far better than when a sudden change was made from winter weather to that of the Tropics. In the latter case the fireroom force suffered especially. The change from a cold to a hot climate was marked by languor, stomach irritability, and very often catarrhal affections. A man suffering from chronic otitis was likely to have the disease aggravated. Concentration of mind was difficult until the economy had arranged its metabolism to suit the changed conditions.

Nearly an entire new crew was placed on the ship on June 19. Many were recruits and the sick list was very large. The fireroom force had a considerable number of recruits who were unused to sea life and the excessive temperature of the fireroom in the Tropics caused about a dozen cases of heat prostration among them.

From the middle of July to the middle of September the ship was at Chefoo, and no other place, it is believed, has a more salubrious climate during the summer months. The air is cool and dry, and beautiful days predominate. The ship was turned into a temporary hospital transport about the middle of September, taking 35 sick to the United States naval hospital at Yokohama, Japan. It was with difficulty that they were made at all comfortable. A complicated fracture of the pelvis, cases of appendicitis, and others might have required operative interference to save life. It is not pleasant to think of what might have occurred if it had been necessary to operate on these men in a sick bay filled with all kinds of cases. This instance emphasizes the need of a hospital ship on this station.

EXTRACT OF REPORT ON THE U. S. S. CLEVELAND.

By W. M. WHEELER, *Surgeon, U. S. Navy.*

During the year the ship was forty-two days at sea and three hundred and twenty-three days in port, and spent the greater part of the time in the Tropics.

While the number of days at sea was not excessive, the men had little chance for liberty. Opportunity for athletic exercise was given, however, when practicable. General liberty was given the crew at St. Thomas in July and in Ponce in December. To the fact that the ship was in a hot climate from December, 1904, to the end of 1905 is attributed the general lack of physical tone among the ship's crew. In this connection may be mentioned the large number of abscesses and carbuncles which occurred aboard. Almost 80 per cent of the crew and several of the officers were affected. During the last two quarters there were 78 cases which had to be admitted to the list. The number of venereal diseases was small, as the men had but little opportunity to expose themselves. Considering the conditions to which the ship's company was subjected, its health has been excellent. There were no deaths, and the only serious cases were one of mania, one of paronia, and one of neurasthenia. The sanitary condition of the ship has been very good, but the ventilating system is a failure, and should be changed from exhaust to plenum. The plumbing is also defective and has caused a good deal of trouble. The ice machine has worked excellently.

EXTRACT OF REPORT ON THE U. S. S. COLORADO.

By G. B. WILSON, *Surgeon, U. S. Navy.*

The United States armored cruiser *Colorado* was commissioned January 19, 1905, at League Island, Pa.

Principal dimensions: Length between perpendiculars, 502 feet; length over all, 504 feet; beam, 69 feet 6½ inches; draft, 24 feet; displacement, 13,980 tons.

In every sense the vessel may be considered modern in equipment. The living spaces for both officers and men are bountiful, and their arrangements and devices for the maintenance of health, efficiency, and comfort appeal at once to the observer.

From a sanitary point of view, however, there are a few defects, which when corrected will make the vessel a habitation as nearly perfect as can be obtained in a ship of war. The forward part of the main deck is devoted to the galleys and a bakery, which are provided with modern appliances for the preparation of food. To facilitate work in this department, two coffee urns, navy standard, requiring from one and a half to two and a half hours to boil water, should be replaced by jacketed ones requiring but one-fourth this time. The dish-washing machine has not proved a success. Its remoteness from the messes and the small space allotted it in the galley, together with an insufficient water and steam supply, have rendered its use impracticable. It should be placed on the gun deck, adjacent to the mess gear. There are billets for 174 men on this deck, fairly well protected, except in cold weather, and billets for 64 men within the casemates, which are habitable, except in extremely cold weather. Each casemate has billets for 16 men and a cubic air space of 2,156 feet, thus allowing 134 cubic feet per man. Abundant natural ventilation and light are afforded the quarters on this deck.

On the gun deck within the casemate and forward of the warrant officers' quarters on both sides are bath rooms and water-closets for the wardroom and warrant officers, and a water-closet for the junior officers. The bath rooms are equipped with a white enameled tub and two showers for hot and cold water. The floors are of tile, and light and ventilation are by natural and artificial means. The latter is conducted by the exhaust system, and is insufficient.

The casemate extends from frame 92 to frame 34. Ten 6-inch guns are located within it, and amidships are drying rooms surrounding the four funnels, the upper evaporator room, blowers, air trunks, and mess lockers. This compartment with the one immediately forward affords the principal living space for the crew. Its cubic air capacity is 82,361¾ feet, and it has hammock billets for 414 men, thus affording 198¾ cubic feet per man. Opposite the ash hoists are six chutes, three on a side, for the dumping of ashes and garbage. The forward set run up to the main deck, and material thrown in from that deck frequently escapes thru the openings on the gun deck. The after chutes are a source of dirt and of noxious odors in warm weather. They should be carried up to the main deck also and the openings of all six on the gun deck closed.

The compartment forward of the casemate bulkhead, extending from frame 34 to frame 17, has a cubic air capacity of 20,503¾ feet, and hammock billets for 124 men, giving 165⅜ cubic feet per man. Rooms are provided for the chief master at arms and sergeant of marines on the starboard side, and for commissary stores on the port. Four 3-inch rapid-fire guns and two scuttle butts, having a capacity of 160 gallons and cooled by the comprest-air ice machine, are also located here. These spaces are supplied with natural light and ventilation by hatches, doors, and gun ports, the amount of both being governed by weather conditions. Frequently it is found necessary to put up the gun-port shutters and close the hatches, during which time the air supply is insufficient and foul. Artificial air supply should be furnished these spaces.

The deck, with the exception of that of the head, toilets, and bathrooms, is covered with linoleum, which is kept shellacked.

The petty officers' and seamen's head and wash room on this deck embraces the space between frames 17 and 2, and has a cubic air capacity of 9,734 feet. There is a sufficient number of seats, and the system of flushing is good, except that the water supply passes thru the fresh-water distillers and is so heated thereby that it causes disagreeable and unhealthy vapors to rise from the closets; besides, in hot weather and in the Tropics, it increases the temperature of the compartment to the degree of intolerance. A separate flushing pump would help to remedy these evils.

Fifteen fixt porcelain washbowls and eight showers are located in the forward part of this compartment, all of which are piped for salt water only, and serve their purpose during warm weather or while in the Tropics. This space is lighted by means of two hatches and ten 13-inch air ports; its ventilation, which is principally from the same source, at sea is cut off most of the time. Artificial ventilation by means of fourteen 3-inch louvres on the exhaust plan is wholly unsuccessful.

On the berth deck the space abaft frame 92 is devoted to living quarters for the wardroom and junior officers. At the extreme end is compartment D-131, containing two Sturtevant blowers, two wardroom water-closets, two urinals, three showers, and a fixt enameled bath tub. The floors are tiled. Owing to the fact that the ship squats while under way, the discharges from these fittings are under water and can not then be used. To correct this condition and to make them available at all times, they should be raised to a higher plane.

The wardroom and junior officers' pantries in compartment C-120 have tiled floors, and are provided with natural light and ventilation by large trunks to skylights on the main deck, supplemented by artificial ventilation. When the weather is good and the ship is at anchor in smooth water, the natural means of lighting and ventilation by skylights and air ports may be said to be sufficient, but at sea and in rainy weather artificial ventilation, which is attempted by the exhaust system, is inadequate and unsatisfactory, and hot and steamy, oil-laden air is drawn from the decks below thru the countries and rooms occupied by the officers.

On the outboard side of the passageway, in compartments B–137, 138, 135, 136, and A–151 are located washrooms for the machinists and firemen, having fixt basins and showers. The showers are supplied with salt water only, but the pipes to the basins may be used for fresh or salt water. Amidships in these compartments are blower rooms, an evaporator room; also a laundry which is fitted with machinery capable of doing the work for 800 people. Under an experienced man it is accomplishing excellent results. Its location is bad, and in the Tropics, owing to its poor ventilation and intense heat, the laundry work could not be done. Additional supply ducts for ventilation were made during our stay at the New York yard, but whether they will prove adequate in the Tropics remains to be demonstrated.

The isolation ward has proved of great service in the handling of contagious cases and as a dark room for affections of the eye. Its cubic air capacity is 1,018 feet, and it has four folding cots of iron piping fitted with wire mesh springs. It is not well ventilated naturally or artificially. Air is received naturally by one 13-inch air port and a door. At sea the port must be shut, and to effect isolation in contagious cases the water-tight door should be closed; this, however, has not been feasible, for the only artificial ventilation is by one louvre capable of exhausting 237 cubic feet of air per minute. A supply tube should be installed here.

The two cells, each having a cubic-air capacity of 307 feet, are lighted by air ports, which may be used in smooth water in port as a means of ventilation. A 3-inch ventilating supply tube is also placed in each cell. As is the case thruout compartment A–150, the cells are hot and insufficiently ventilated.

The sick bay occupies the starboard side of compartment A–149. Its location is undesirable on account of the noisy machinery placed about it; the anchor engine is on the deck above, and three chain pipes pass thru its center. The ice machine near at hand adds to the noise and is frequently a source of escaping steam to the compartment. The entrance to the refrigerating rooms is also abreast the sick quarters.

The ward contains 23 cots similar in construction to those in the isolation room, arranged in double tiers, except three, which are placed above and along the cofferdam. It is of ample size, well arranged, and equipped. Its ventilation, a combination of the natural and artificial systems, is good while the ship is at anchor. The former is accomplished by two doors and three 13-inch air ports; the latter is maintained by two supply ducts affording 513 cubic feet per minute and one duct exhausting 538 cubic feet per minute. The ward is insufficiently lighted; this is in part due to the fact that the natural supply of light by the ports is cut off by the outboard tier of bunks. Artificial light is required at all times, and this should be increased by the installation of at least two 3-light clusters in the deck.

The operating room is distinct, communicates only with the sick bay, and is most thoroly and amply equipped.

The bathroom is entered from the sick bay by a water-tight door. The floor is tiled. Hot and cold fresh and salt water are supplied the shower, fixt tub, and basin.

The water-closet has proved unsatisfactory; it is the Richmond pump closet of the J. L. Mott make. Its mechanism is too delicate for the work required; it has nearly always been out of commission, and should be replaced by a simpler and more effective type of closet.

The dispensary, located forward of the entrance to the sick bay, on the opposite side of a passageway, is large, well arranged, and equipped. Its approach is inconvenient by reason of a hatch which opens immediately in front of the door. Hot and cold water are supplied to the fixt enamel basin. The failure to have a valve placed in the drainpipe from this bowl permits water to back up in it when the sea is rough. A similar condition exists in the bowl in the operating room. At the first opportunity an effort will be made to have proper valves supplied. One 13-inch air port affords natural light and two 16-candlepower incandescent lamps are supplied. They are insufficient, and at least one more lamp should be placed here. Besides ventilation by the air port, which can be opened only in smooth weather, there is one 3-inch louver exhausting 66 cubic feet per minute. As the air to the dispensary is drawn from the berth deck, this system is a failure, and a supply duct should be introduced.

The four cold-storage rooms are placed on the port side of this compartment, abaft the dispensary. The room allotted the commissary will hold about 1,700 pounds of meat, sufficient for twenty days, and the three others for the officers' messes, while proportionally smaller, can hold enough for twice that time. An effort is always made to maintain the temperature of these rooms at about freezing; but this is often impossible, as the machine must be overhauled or repaired. During such times the meats are exposed to partial or total loss. A second machine should be provided to insure against such possibilities.

Compartment A-148 is used for the living quarters of the chief petty officers. It has a cubic air capacity of 6,090 feet, giving about 295 cubic feet per occupant. Twenty-four folding iron cots are provided the men in this place. At anchor natural light and air are supplied by eight 13-inch ports, a hatchway to the gun deck, and a door to the berth deck. The artificial ventilation is poor and is conducted by the exhaust system; 4 louvers having a combined power of exhausting 922 cubic feet per minute are provided for the purpose. At sea the only ingress of air is from the gun and berth decks and the results are unsatisfactory. A suitable supply system should be provided.

The engine rooms are well ventilated by natural and artificial means. At no time has the temperature been excessive. One blower driven by an electric motor is provided each room. The supply system only is used. Louvers of sufficient size are distributed over the upper, middle, and lower platforms.

The fire rooms, ten in number, receive their air supply by means of ventilators, which with the wind ahead or abeam has proved sufficient. With a following wind, the temperature has risen as high as 140° F. in the outboard rooms, but at such times it is usual to use force draft, which at once relieves the condition. There have been but two cases of heat prostration treated during the year. The rooms may be considered as cool and well ventilated as they can be made.

The fresh-water supply has been adequate and of excellent quality. The evaporators are arranged in pairs, two on the berth deck, and two immediately above them on the gun deck. They have a combined capacity of 23,000 gallons of portable water in twenty-four hours, and the distillers have a rated capacity of 10,000 gallons in twenty-four hours. The distillers are located in the hatch over the evaporator room. The temperature of these rooms is never excessive, and the air supply, by natural and artificial means, is good.

The medical storeroom is inconveniently located, being placed two decks below and abaft the dispensary. It is of ample size and well arranged.

Wherever artificial ventilation has been attempted by the exhaust system alone it has proved unsatisfactory, and this pertains on the whole thruout the living spaces of the ship. The most serious defects by this method are shown in the various compartments forward of frame 34. To all these spaces there is but one intake, giving a supply to the sick quarters, cells, and to four louvers in compartment A-150. At sea in rough weather this opening and the cowls of the exhaust blowers located on the forecastle have to be closed. During such times the head receives ventilation only by the doors to the gun deck, thru which its odors penetrate to the chief petty officers' quarters and the various spaces on the berth deck.

Ventilating cowls which could operate at all times should be placed on the superstructure abaft of the pilot house, with suitable blowers for supplying fresh air to these spaces, in conjunction with the exhaust system.

Thruout the wardroom and junior officers' quarters on the berth deck a supply system should be substituted for the present unsatisfactory exhaust plan. The officers' bathrooms and water-closets on the gun deck should also have a supply system to act in conjunction with the exhaust plan. Additional ventilation should also be supplied the passageways on the berth deck when the temperature in the Tropics is excessive.

The ship is well heated by steam radiators, and the lighting is good with the few-named exceptions.

The ship's complement for the year was 725, and it can be said that the general health of the officers and enlisted men was good. The medical records show that there were 562 admissions and 3,226 sick days. The daily average of patients was 9.37 and the percentage of sick 1.28. When it is considered that the ship was commissioned during the severe winter weather of 1905 this percentage is small.

In the class of general infectious diseases there were admitted 24 cases of catarrhus epidemicus, 8 cases of febris pneumonica, 1 case of parotitis, 5 cases of scarlatina, 1 case of morbilli, and 8 cases of tuberculosis pneumonica chronica.

EXTRACT OF REPORT OF THE U. S. S. COLUMBIA.

By E. H. MARSTELLER, *Surgeon, U. S. Navy.*

The sanitary condition of the vessel and the health of the personnel were very good.

Some of the woodwork was removed from the vicinity of the "head" and the closets and bathrooms for the officers, and metal and tiling were substituted. There is a large amount of woodwork in the officers' quarters which should be replaced by metal for sanitary and military reasons.

A suitable room should be arranged near the sick quarters to serve as an office and operating and examining room combined, which would relieve the sick bay of congestion, confusion, and vexatious noises during sick call, and admit four more beds in the space now occupied by the desk and operating table. At present all work, such as typewriting, examinations of men, and operations, must be done in the presence of the sick.

EXTRACT OF REPORT ON THE U. S. S. CONCORD.

By A. E. PECK, *Passed Assistant Surgeon, U. S. Navy.*

The U. S. S. *Concord* went into commission on September 16, 1905, at the navy-yard, Pudget Sound, Washington.

Owing to a lack of officers and to the fact that the boilers were found to need a thoro cleansing from grease to render them safe, the ship was not reported ready for sea until December 22, 1905.

On December 23, 1905, orders were received to proceed to Cavite, P. I., and the following day the ship left the navy-yard.

At sea in stormy weather the *Concord*, like the other vessels of her type, proves to be very wet and uncomfortable, altho, owing to the removal of her sponsons amidships, the after part of the deck takes less water aboard than formerly.

Sanitary conditions are excellent as regards heat, light, ventilation, bathing facilities, and heads.

The one-half ton vertical Allen dense air ice machine, owing to a mechanical defect, does not furnish sufficient ice for cold-storage purposes.

The berthing space is sufficient for the present complement of 177 men in the Tropics, as many of the crew sleep on deck, but would be cramped in a cold climate.

The health of the crew has been good.

Drain pipes should be installed in the engineers' wash rooms on the berth deck, as there is no way of removing the water from the tiled decks except by mopping it up, and consequently the air on that deck is apt to be charged with moisture.

EXTRACT OF REPORT ON THE U. S. S. DENVER.

By C. D. LANGHORNE, *Surgeon, U. S. Navy.*

The greater part of the year was spent in Santo Domingo waters, where there was no opportunity to give liberty, and the confinement aboard ship and the prolonged stay in the Tropics told on the health of the officers and crew. For the first seven months no general liberty was given the crew. The health of the crew, as shown by the number of sick days, 2,243, daily average of patients, 6, and percentage of sick, 1.9, was good, but listlessness and loss of tone and vitality from prolonged stay in the Tropics were marked. Venereal disease was very prevalent. Kingston, Jamaica, is a place to be avoided by ships for the purpose of giving liberty. Poor physique in men of the fireroom force, especially the coal passers, was very noticeable, and more care should have been exercised in selecting them.

The following repairs and changes are recommended: The deck of the crew's heads leaks thru to the berth deck; the tiling should be taken up, the steel deck made water-tight, the tiling relaid, and the urinals renewed. The seats of the water-closets should be made portable, so that they could be taken on deck, scrubbed, and sunned. The flushing system of the officers' water-closets is inadequate.

The base heaters in the crew space should be replaced by radiators, as the present heaters serve to collect and conceal dirt. Engineer's compartment, A-122, should be tiled and drained; at present this space is always dirty and wet, as men coming off watch and from the bathrooms come directly into it. The whole floor in the cold-storage space should be replaced by tiles. The water for the flushing system of the ship should come direct from the sea and not pass thru the distillers; at present, unless one evaporator is cut out, the men have hot water to bathe in, and hot water passes thru the heads and water-closets, which is undesirable. The ice machine and cold storage are inadequate, as shown by the great loss of stores in a warm climate.

EXTRACT OF REPORT ON THE U. S. S. DES MOINES.

By J. A. MURPHY, *Passed Assistant Surgeon, U. S. Navy.*

The sanitary condition of the ship for the past year was good. A special report was made October 29, 1905, condemning the present toilet fixtures in use in the various heads and recommending that the warrant and commissioned officers' closets be changed to a location on the gun deck, where gravity fixtures could be installed in place of the complicated pumping system now in use.

The ventilating plant consists of supply in one place and exhaust in another, and is maintained by electric blowers; these methods do not act generally in direct combination. The forward end of the ship, storerooms, and berthing space has the exhaust system. The dynamo and the steering-engine rooms have both exhaust and supply, and the after end of the ship has supply on the lower deck and exhaust on the berth deck. It is recommended that all the exhaust blowers, excepting Nos. 1, 8, 11, and 15, be changed to supply. It is believed this could be done easily by reversing the present attachment of the main ducts to the fan. The blowers excepted, exhaust air from the crew's head, dynamo room, officers' closets, warrant officers' quarters, and the steering-engine room, respectively.

If the recommendation made October 29, 1905, to change the location of the officers' closets, be approved, blower No. 11 should also be changed to supply.

While it is desirable that all supply louvers should open at the bottom of each compartment, an extension of some of the present ducts downward would probably not compensate for the loss of power due to bends and friction. In winter the cold air in passing thru the ducts would probably be heated sufficiently not to cause discomfort. If necessary, an electric heater in the ventilator could be used to advantage.

Ordinarily the gun deck is well ventilated, but in cold weather, squally weather, or in a rough sea, closing the air and gun ports and covering the hatches renders the air very foul, especially at night. In addition to the expired air from the men, foul air from the heads, galley, engine, and firerooms makes its way to this deck. The blowers as arranged at present suck this admixture down to the berth deck, where it must be breathed by those quartered there before it passes overboard.

The anemic appearance of the mess men and mess cooks is no doubt due to occupation and confinement in this atmosphere, combined, perhaps, with lack of exercise.

The warrant officers' and wardroom pantries have no drain overboard. Waste water collects below the sink and must be carried to the upper deck. This tends to dampness and dirt. A desirable change in fitting out pantries aboard ship would be the abolishment of wooden drawers and shelves and the substitution of removable galvanized-iron gratings similar to the mess and clothes lockers supplied this ship. Fixt wood soon becomes water-soaked, collects dirt and grease, gives off a musty odor, and serves as a home for cockroaches.

General liberty at night was granted but five times in twelve months; after April, but once in nearly eight months. Baseball parties absorbed nearly all the liberty by day. Of the night liberties the one at Habana might be considered first-class; all other places offered little or nothing in the way of amusement, so that individuals more or less discontented by confinement to a limited space and the want of change in daily routine, perhaps for months at a time, when the chance offered, recklessly plunged into dissipation and returned to duty with nerves and digestion disordered and with venereal disease contracted while drunk and careless.

For the contentment and health of the men it appears desirable that some definite policy be adopted as to the stay of a ship on such duty as exists in Dominican waters or in like places where liberty is prohibited for various causes.

EXTRACT OF REPORT ON THE U. S. S. DIXIE.

By W. H. BELL, *Passed Assistant Surgeon, U. S. Navy.*

This report covers the period of the cruise of the *Dixie* from May 1 to October 23, 1905, when the ship was put out of commission.

The arrangement and equipment of the ship from a sanitary point of view are excellent, and her unvarying condition was that of unimpeachable cleanliness thruout.

Mumps was the only contagious disease which appeared among the crew, and, tho spreading mildly for a time, it never gained a footing. Nevertheless, the epidemic contributed a large number of sick days and gave some anxiety, in view of the large number of apprentice seamen on board at the time. It is thought that the disease was brought by them from the *Franklin* via the *Yankee* in the latter part of March, 1905. One case occurred March 26, 1905, two days after their arrival on board, and this evidently established the chain of infection, as none occurred thereafter until April 18, 1905, which interval gave ample time for the incubation period. On that date one new case appeared and others followed in close succession. Notwithstanding thoro disinfection and isolation, other cases occurred, until the extra precaution of keeping the drinking cups at the scuttle butts immersed in a formaldehyde solution was rigidly enforced, and then the disease entirely disappeared. It seems certain that the drinking cup was the agent in carrying the disease from person to person. Most of the cases were benign, tho orchitis developed in some, and in one case a serious kidney complication occurred.

One feature of the medical records, viz, the large number of sick days placed to the account of the engine-room force, merits attention. They represented about one-fifth of the ship's company and yet they contributed about one-third of the sick days. Moreover, many of those who were not excused from work were anemic and in poor condition generally. The engine-room force really presented a sanitary problem difficult of solution, for the cause of its poor health could not be removed. It was always shorthanded and the demands of the department kept the men too long below decks and away from the sun and air.

EXTRACT OF REPORT ON THE U. S. S. DUBUQUE.

By L. W. BISHOP, *Passed Assistant Surgeon, U. S. Navy.*

This ship is a composite gunboat of 1,085 tons displacement designed especially for tropical service and was placed in commission June 3, 1905.

The berthing space for the crew occupies the whole of the berth deck and the forward half of the gun deck, giving a cubic-air capacity of 200 cubic feet per man. The gun deck is ventilated naturally, being supplied with air ports of twice the usual size, which can be left open in ordinary weather at sea, while the berth deck is ventilated by means of blowers of the supply variety, which furnish an abundance of pure air.

Unlike most ships of this type, the officers' quarters are located on the gun deck, just forward of the quarters of the commanding officer, and are commodious and well ventilated.

The ship is supplied with a 1-ton dense-air ice machine and the distilling system furnishes an abundance of fresh water.

The space assigned to the medical department occupies the starboard side of the after berth deck and consists of an adjoining dispensary, sick bay, and bathroom. The sick bay is supplied with six folding bunks, is commodious and well ventilated, having a cubic-air capacity of 300 cubic feet per bed, and is an admirable type for ships of this class.

Since going in commission the ship has cruised along the New England coast and has but recently reached tropical waters. The health of the crew has been excellent, the daily percentage of sick being but 0.24 of 1 per cent. The ship has been entirely free from epidemic disease and venereal infection has been at a minimum. On the whole, there is nothing to be recommended in relation to the sanitation of the ship. She is particularly well adapted for tropical cruising.

EXTRACT OF REPORT ON THE U. S. S. EAGLE.

By J. O. E. HUMMEL, *Hospital Steward, U. S. Navy.*

The present complement of the ship is 63 men, 2 draftsmen, and 5 officers. For the past year there has been no medical officer attached to this vessel, the duties having been performed by a hospital steward.

While engaged in surveying work along the north coast of Santo Domingo from Cape Engaño westward, there were several landing parties that remained ashore from three to ten days, taking food, water, and emergency outfits with them. This part of the island is sparsely inhabited and is of exceptionally fine climate, and our men returned to the ship without having experienced any bad effects from their stay ashore.

The vessel is well supplied with electric light, having a dynamo of 7 kilowatts. The water supply is of excellent qualtity and of sufficient quantity for the ship's use.

The capacity of the distilling apparatus is about 1,440 gallons a day. The ice plant is a source of great comfort and convenience. The cold-storage room has a capacity of carrying fifteen days' supply of fresh provisions.

Nothing in the way of a wash room has been provided for the men. They use buckets. This practise is satisfactory so long as the ship remains in a warm climate. The heads are built over the rail aft and covered with canvas. They are easily kept clean and are free from all odor. They are extremely inconvenient in rough weather at sea, but there is no other possible arrangement.

The sick bay and dispensary combined are located aft, on the port side of the berth deck, and curtained off. There is one bunk which the hospital steward occupies. The sick are placed in berths or hammocks on the berth deck. No bathroom or closet for the sick is practicable on a ship of this size. Suitable shelving and lockers for drugs are provided.

The forward and after living spaces are provided with a system of piping for heating purposes. The officers' quarters have steam radiators, and all parts of the ship can be kept at a comfortable temperature when required.

The health in general of both officers and crew has been excellent, and no diseases traceable to defective sanitation have occurred, altho the ship has past six months in a tropical climate. The record shows 66 admissions to the sick list; of these 41 were for venereal disease.

EXTRACT OF REPORT ON THE U. S. S. ELCANO.

By J. P. De Bruler, *Assistant Surgeon, U. S. Navy.*

January 1 to May 11, 1905, the *Elcano* was stationed in the Yangtse River and was manned by the crew which had served on board from the arrival of the ship in China, nearly three years. The health of the ship's company was good. May 11 the *Elcano* was ordered to the Philippines and arrived at Cavite May 16. On June 21 all the short-time men were transferred and a new draft of 85 men was received from the *Ranger*, which had just arrived from Puget Sound. This new draft consisted of men enlisted at Puget Sound, Washington, and at once sent to the *Ranger* for the Philippines. Before they could adapt themselves to the change of diet and mode of life on board ship, the *Ranger* sailed to the Philippines, where a tropical climate entered as a new factor. This combination of circumstances, without doubt, accounted for the large number of sick days during the last quarter.

At the end of the second quarter the old crew was transferred and the new crew was received. Comparing the first two quarters with the second two we find:

OLD CREW.		NEW CREW.	
First quarter	136	Third quarter	112
Second quarter	107	Fourth quarter	309
Total	243	Total	421

During the last quarter much malarial fever developed, the infection taking place at La Isabela, Basilan, where the ship lay from August 23 to October 11. Many marshes abounded where mosquitoes bred. At night they invaded the ship in swarms, and, as the men were not protected with mosquito nets, proved a pest. Not only did the bites of these insects produce malaria, but they caused indirectly numerous skin lesions, such as boils, cellulitis, and ulcers thru infection from scratching. Of these very chronic ulcers two only were found to give a specific history. In most cases general tonics were required, as the sores resisted for weeks all local treatment.

Malaria contracted in the south recurred in many instances, and cases developed after our arrival in China which had unquestionably been infected at La Isabela.

EXTRACT OF REPORT ON THE U. S. S. FLORIDA.

By M. S. ELLIOTT, *Surgeon, U. S. Navy.*

During the past year the *Florida* has been attached to the Coast Squadron and has visited practically all the ports on the Atlantic coast from Rockland, Me., to Port Royal, S. C.

During the summer, from June 3 to August 3, three classes of midshipmen were on board. Their health during this time was excellent, no cases of illness of a serious nature developing.

The health of the crew was very good.

The greater number of sick days were, as usual, due to venereal disease.

No changes were made in the ship during the year which influenced the health of the crew. The ventilating system answered all requirements. A few minor improvements were made in the sick bay. It is recommended that folding bunks be installed in the sick bay instead of the stationary ones now in use. With the operating table shipped, there is barely room to move around it. The bathroom for the crew is finished in cork paint. This is unnecessary, and a smooth finish of enamel paint could be more easily kept clean.

The officers' bathroom is rarely used, as it is situated some distance forward and is equipped with only a shower for salt water. The present type of seats in the officers' water-closet is unsatisfactory.

EXTRACT OF REPORT ON THE U. S. S. FROLIC.

By F. W. S. DEAN, *Assistant Surgeon, U. S. Navy.*

During the year the *Frolic* cruised exclusively among the Philippine Islands, visiting practically all of any importance and making a record of almost 10,000 miles in the last six months. Continuous cruising in a tropical climate on a small ship without an ice machine or any system of artificial ventilation was very trying to both officers and men.

The crew's sleeping quarters are fore and aft on the berth deck and in port are very comfortable, but at sea, especially during the rainy season, when even the hatches have to be closed, the air becomes very impure and many of the men sleep on deck, preferring to get wet rather than to stay below. Ice is only obtainable in the larger towns and army posts.

The health of the crew was very good, with the exception of an occasional case of malaria or of dengue and the usual proportion of cases of venereal disease. Cebu, where the prostitutes are principally natives, seems to be the worst port. Manila and Olongapo are remarkably free from venereal disease, and syphilis is rare.

During the cholera epidemic in the fall our quarantine was very strict, no liberty being allowed in either Cavite or Manila. In spite of this several cases of dengue occurred in men who had not been ashore for more than a month. The ship was anchored in the bay a few hundred yards from shore. No fresh food was allowed and all water was distilled.

At Polloc the small Spanish hospital is in good condition and answers its purpose very well for the small force of marines now stationed there. It is in charge of a hospital steward, who in serious cases can obtain assistance from the army surgeon at Parang, across the bay.

At Isabela the old Spanish hospital, which is built on piles out in the channel, can be easily repaired. The piles and lumber are of the best Philippine hard woods and are still in excellent condition. This station is now only used for coaling the gunboats on duty in the southern islands.

EXTRACT OF REPORT ON THE U. S. S. GALVESTON.

By H. E. ODELL, *Passed Assistant Surgeon, U. S. Navy.*

The *Galveston* was commissioned February 15, 1905, the last one of six protected cruisers of the class, 3,200 tons displacement.

The gun deck has no system of artificial ventilation. On the berth deck an exhaust system of ventilation by electrically operated fans has proved a mistake, except for the compartments in which the bathrooms and water-closets are situated. Upon the recommendation of the trial board the system was changed from exhaust to supply in the wardroom and warrant officers' quarters, and the change should have been made also on the berth deck forward. The fans installed are of such size as to give excellent results under all conditions, if properly connected up. The bathrooms and water-closets have an independent exhaust system, which is quite satisfactory. The storerooms and all compartments below the protective deck have the supply system, except the steering-engine room, which has the exhaust plan. This arrangement is satisfactory in every respect.

The berthing space is ample for the crew. The crew's water-closets are of the old trough type, and are easily kept clean, but a more modern arrangement might have been installed. The bathing facilities for the crew are good, showers being provided on the gun deck forward. The fireroom force has three bathrooms on the berth deck fitted with showers and bowls. These are sufficient for the demands upon them, and the rooms are easily kept clean. The officers' closets and baths are all that could be wisht. The air ports on the berth deck are too small by about 2 inches, and artificial light is necessary in the rooms at all times when work is to be done.

The dispensary and sick bay are situated on the gun deck forward. The former is ample in size and well equipped, but has no artificial ventilation. It is a closed compartment except for the air port, and this can not be kept open at all times. The sick bay is on the port side of the ship, rather small, and not well arranged. There are four folding bunks secured to the outboard side and enough additional space for the use of a swinging cot. This arrangement is not quite sufficient; there should have been eight bunks. The *Chattanooga*, by reason of a little different arrangement of the furniture and doors, has six bunks in the same space, and the change could be made here without difficulty or great expense. The sick bay toilet room is in a separate compartment, just abaft the sick bay, and is well equipped, having a bath tub, shower, washstand, and water-closet.

The ventilation of the sick bay is poor. Two air ports are the only means of providing fresh air. At sea they can not always be kept open, and in port, if the weather is cold, they have to be kept closed. A ventilator should be run up thru the hammock netting and a supply of fresh air provided from the forward fans on the berth deck. The toilet room should be connected with the exhaust system. These changes could be easily made, as the ventilating systems are on the berth deck just below the sick bay.

The site for the sick bay is well chosen, but is located directly over the machine shop, the machinery of which is operated by a motor secured overhead to the deck forming the floor of the sick bay. The motor and its gearing are extremely noisy, making examinations in the sick bay impossible when they are in operation. The noise is also very objectionable to the patients. This can be remedied by changing the location of the motor or by providing one that makes less noise.

The medical storeroom is below the protective deck, forward, and is well situated and of good size.

The ice machine is on the berth deck, abreast the evaporators. It is of the regulation pattern and is a 1-ton machine. It does the work it was designed for satisfactorily, but its capacity should be doubled. The distilling apparatus is excellent and provides a good supply of fresh water for all purposes. Its capacity is about 7,000 gallons daily. The health of the ship's company has been excellent.

At sea the ship is very dry and has but little motion.

It is recommended that steps be taken to have the ventilating system changed to plenum on the berth deck forward; that the dispensary, sick bay, and toilet room be supplied with artificial ventilation; that alterations be made in the size and location of the sick-bay doors, and two additional bunks placed on the inboard bulkhead; and that a new motor be installed or a new site be selected for the present motor operating the machinery in the machine shop beneath the sick bay. These changes would be inexpensive, could be easily made, and would increase the comfort of the crew and the facilities for caring for the sick.

EXTRACT OF REPORT ON THE U. S. S. ILLINOIS.

By E. M. SHIPP, *Surgeon, U. S. Navy.*

The general sanitary condition of the ship and the health of the personnel have been good during the entire year. The records show that 280 patients were admitted to the sick list; of this number 56 were transferred to hospital and 224 discharged to duty. There was no epidemic of contagious or infectious disease, and no deaths occurred. The need for an operating room is felt almost daily. All the surgical work, including the changing of dressings, has to be done in the cramped space available in the sick bay, and this is frequently very unpleasant for patients who are confined to their bunks. Several rather serious injuries of joints occurred, and in every case it was necessary to take the patient ashore for an examination by X-rays. The officer in charge of the electrical department states that there would be no difficulty in installing an X-ray machine in this vessel.

The wireless telegraph office, situated at the after part of the superstructure deck, should be provided with some means of ventilation. The operators are obliged to spend four-hour watches shut up in this almost air-tight box, which in the Tropics becomes exceedingly warm. The men who have to operate the instruments state that it is not practicable to ventilate the room by leaving the door open on account of the noise from the crew about the decks, which makes it impossible to catch the sounds of the instruments. It is believed the space can be properly ventilated by cutting two openings into the ventilators situated just outside the after bulkhead of this room.

The ice machine and cold-storage plant are in excellent condition, and make it possible to carry a good supply of fresh meat for the crew.

EXTRACT OF REPORT ON THE U. S. S. IOWA.

By Lewis Morris, *Surgeon, U. S. Navy.*

During the year ending December 31, 1905, the health of the officers and crew was excellent. The sanitary condition of the ship thruout the year was good. The ventilating system of the vessel is satisfactory, and there is an abundant supply of ice and fresh water at all times. The sick bay has an individual refrigerator for its own use, which adds greatly to the comfort of the sick. The bath facilities for both officers and men are ample. The space allotted to the sick bay is designed to hold 14 bunks, but owing to the absence of a separate operating room, 4 bunks have been stowed below to allow space for an operating table. This places the table in the middle of the sick bay and in full view of any patients who may be confined to their bunks. Some privacy is secured by placing a folding screen around the table, but this is at best unsatisfactory. The following plan for providing an operating room separate from the sick bay is suggested: Remove present inboard sheet-iron bulkhead of dispensary and install a new sheet-iron bulkhead farther inboard, running diagonally from the heavy stanchion to the angle iron. This will not interfere with the present installation of heater pipes or ventilating pipes or lights, and will leave ample desk room and two convenient doors for holding sick call. Just abaft the forward casemate armor there were installed a Howell torpedo tube and gear, torpedoes, and stowage racks. On our last visit to the Norfolk Navy-Yard these were all removed. It is desired to build a dispensary in this space. For the heavy, corner angle iron the requisite holes for fastening are already cut in the proper place in the beam overhead. The large door of the torpedo port thru the side armor is usually left open at anchor, affording good light and air. It would be necessary to install electric lights, shift racks, desks, and fittings from the present dispensary to the new one, and to cut a new door thru the after bulkhead of the present dispensary into the sick bay; convert the present dispensary into an operating room.

During the first month of the year there was a mild outbreak of measles, 14 cases in all. These were sent to naval hospitals, and further spread of the disease prevented by thoro disinfection. The disease originated in a draft of men from the U. S. receiving ship *Franklin*, among whom occurred the first 4 cases. The total number of patients admitted to the list during the year was 541, with a total number of sick days of 3,261. The daily average of patients was 8.92, with a percentage of 1.461. Seventy-five patients were sent to hospitals. Of the total number of sick days for the year, 14.9 per cent were caused by venereal disease. Sixty nine days were spent at sea and 296 in port; 64 of the latter, however, were at Culebra and Guantanamo, which properly should be considered as days at sea.

EXTRACT OF REPORT ON THE U. S. S. KEARSARGE.

By L. W. Kite, *Surgeon, U. S. Navy.*

The health of the crew was very good during the year, and there were no epidemics nor diseases of particular interest. Total sick days were 2,047, average complement was 641, and percentage of sick, 0.87. The ship was in port 289 days and at sea 76 days.

The after torpedo tubes on the berth deck have been removed and the space formerly occupied by them converted into quarters for midshipmen. These quarters have artificial ventilation only, and draw the air from the already insufficient supply going to the officers' mess room and the twelve living rooms aft within the casemate.

The cold-storage room on the berth deck, which for a long time has been in a very insanitary condition, was overhauled recently and the decayed wood and packing in the partitions taken out and replaced by new. It is believed that conditions in this room will be as bad as ever before very long, as wood and other absorptive materials were again used in the construction of the partitions and floor, and drippings from meats and other things stored there will find their way thru the metallic lining of the compartment and be absorbed and retained by the woodwork and packing; and, consequently, the putrefactive odors formerly so objectionable will again be in evidence. In the construction of cold-storage rooms the walls and partitions should be of cement or of some other material that will not absorb fluids, and wood or any other substance liable to decay should be rigidly excluded.

The ship is not provided with adequate bathing facilities for the deck force; many cases of acne or pustular affection of the skin are seen which are due to lack of cleanliness.

It is recommended that the officers' water-closets, at present on the berth deck, be removed to some place on the gun deck, as they could then be flushed with running water. Water-closets in which the bowls are emptied by hand pumping are always insanitary and undesirable on board ship, particularly when placed on the berth deck in close proximity to the sleeping and living quarters.

EXTRACT OF REPORT ON THE U. S. S. KENTUCKY.

By G. A. LUNG, *Surgeon, U. S. Navy.*

The ship spent the first four months of the year in the Tropics and the rest of the time in cruising between various ports along the Atlantic coast from Norfolk to Bar Harbor.

During January and February more than the usual number of surgical cases came up for treatment. These gave opportunity for making several practical tests of the new operating room established on board in the latter part of 1904. In every case the results were most gratifying, each one terminating favorably, and proving conclusively that even under the apparently adverse conditions of a crowded man-of-war at sea good surgical work can be accomplished.

During the early part of the year there were many cases of scabies and pediculosis pubis. It was discovered that the men were resorting to an insanitary practise that may have favored the continuance of these diseases. Every morning fresh water was issued to the crew for washing their bodies. After bathing, each individual poured his share into the division barrels. This water, contaminated with a soapy precipitate of skin excretions and desquamations, was again used later in the day by members of the division to wash their clothing, and not infrequently to wash their hands and faces. A formal report was made to the commanding officer, and the practise was stopped. It may have been a mere coincidence, but soon afterwards the cases of scabies became markedly less. The reform was brought about before a microscopic examination of the water could be made.

The attention of the proper authorities should be called to the curtain hangings now used on board ships of the Navy. Those in common use are made of some heavy material with a coarse velvet-like surface which too readily retains dust, dirt, and odors. Hangings should be made of some material with a closely woven surface which may be washt. There are varieties of cotton and linen goods admirably adapted for the purpose which admit of any coloring or design.

When the ship went to sea after a stay in port, the drinking water contained much sediment, of a dark-red color, which was undoubtedly rust from the sides of the tanks, washt down by the rolling of the ship and held in suspension by the water. It was possible, but not likely, that some organic matter might have been mixt with the sediment, as the water was distilled and the openings into the tanks were ordinarily well protected. Four or five days after the appearance of this sediment in the drinking water it was noticed that an epidemic of diarrhea occurred. As many as 30 cases were under treatment at one time. The affection displayed itself in varying degrees from a slight colic to a severe gastro-intestinal irritation causing nausea, vomiting, abdominal pain, marked diarrhea, and, in a few instances, slight elevation of temperature. The attacks lasted from 24 to 48 hours and were relieved by an alkaline laxative followed by an astringent and a sedative.

EXTRACT OF REPORT ON THE U. S. S. LAWTON.

By H. B. FITTS, *Surgeon, U. S. Navy.*

The *Lawton* went into commission at the Mare Island Navy-Yard April 24, 1905, with a complement of 8 commissioned and 9 warrant officers and a crew of 155 men, including 14 marines.

She had recently been fitted out at the yard for use as a receiving ship, but was now to be employed as a transport in place of the *Solace* for service between San Francisco and the Philippines, touching at Honolulu and Guam. For this reason some of the coal bunkers were restored, but very few other changes were made.

During the year the ship made two voyages to the Philippines and one return voyage to San Francisco.

There was very little sickness among the officers and men belonging properly to the ship. By far the greater number of cases contained in the quarterly and annual returns are those of patients who were invalided from the Philippines for hospital treatment or for discharge from the naval service. Twenty such patients were brought back on the first voyage and 28 on the second. Fortunately, not many of these required to be kept in bed, as the berthing facilities in the sick bay are very limited.

The following are the principal diseases for which these patients were returned:

Anæmia, 3; alcoholism, 2; appendicitis, 1; arthritis, 1; catarrhus gastricus chronicus, 2; cordis palpitatio, 2; cordis valvularum morbus, 2; cystitis, 1; dysenteria chronica, 1; epilepsia, 1; lymphadenitis, 1; melancholia, 3; nephritis chronica, 1; neurasthenia, 4; pleuritis chronica, 1; psilosis, 1; pyorrhœa alveolaris, 1; rheumatismus articularis acutus, 1; sclerosis multiplex, 1; strictura urethræ, 1; syphilis consecutiva, 8; tuberculosis pneumonica chronica, 2; uncinariasis, 1; varix, 1; vulnus sclopeticum, 1.'

The *Lawton* is a steel steamer of about 4,000 tons displacement, which, as the *Yumuri*, originally belonged to the Ward Line, plying between New York and Havana. Her length is 321 feet and beam 43 feet. Having been acquired by the Navy during the Spanish war her name was changed to the *Badger*. She was fitted out at the New York Navy-Yard for the visit of the International Commission to Samoa in 1899. Afterward she was transferred to the War Department, rechristened the *Lawton*, and used for several years as an army transport. Then, having been returned to the Navy and fitted as a receiving ship, she remained at the Mare Island Yard until commissioned for this cruise.

Her present bunker capacity is about 900 tons of coal, giving her a steaming distance of about 5,000 miles at 11 or 12 knots an hour. Between Honolulu and Guam, a distance of about 3,300 miles, it is considered necessary to store a considerable amount of coal on the decks, to the great inconvenience and discomfort of the men.

The storage capacity for drinking water is about 7,700 gallons, and the evaporators usually furnish about 3,000 gallons daily. The water is not of the best quality, being generally strongly impregnated with iron rust from the old piping. The refrigerating plant is capable of making about 180 pounds of ice per day, and the cold-storage room will hold about 16,000 pounds of meat and other provisions. This plant has frequently been out of order, necessitating the loss of a considerable amount of fresh meat. On this account and because of the danger to be apprehended from the accidental leakage or bursting of the ammonia tanks or pipes it is desirable to replace the present machine with one more modern and less dangerous.

On the upper deck are 3 deck houses; the forward one contains the cabin; in the after one is the wardroom and 7 staterooms, and in the middle one, thru which the engine-room hatch opens, are 5 staterooms and the wireless-telegraph room. The warrant officers' quarters are situated on the after part of the gun deck, and contain 12 rooms opening into a mess room. Only 14 or 15 of these rooms are available for passengers, the others being occupied by officers attached to the ship.

The sick bay, situated on the port side of the berth deck aft, is 20 feet long by 15 feet broad and contains 8 bunks. One of these is occupied by the hospital steward. The dispensary and bathroom open into the sick bay. The medical storeroom is on the deck below. It is too small, too hot, and badly ventilated. When at sea with the air ports closed, the ventilation of the sick bay and of the rest of the berth deck is very poor indeed. In the Tropics the heat is often excessive, especially when the wind is aft, so that the wind sails and ventilators have no effect. An electric blower with a small branch opening into the sick bay was recently installed, but proved to be of very little use. The deck has a berthing capacity of about 183 men aft and 156 forward of the coal bunkers, but more than half of each of these spaces is usually taken up by freight and coal. This and the deficient ventilation render the deck so uncomfortable that the men generally prefer to sleep on the upper deck, except in the coldest weather. When it is remembered that there are sometimes 20 to 30 patients on board besides those belonging to the ship's company, generally 4 or 5 in number, it will be seen that the accommodations for the proper berthing and treatment of the sick are very poor indeed.

The cells, 8 in number, are situated on the forward orlop deck, which gets its air thru a wind sail. When returning from the Philippines, there are usually a number of prisoners and it is sometimes necessary to put 2 men in each cell, which is obviously an undesirable thing to do. The place is often overcrowded and the ventilation deficient. This state of affairs is especially unfortunate when, as occasionally happens, it becomes necessary to confine an insane patient.

The gun deck is well ventilated by means of air ports and hatches, and has berthing space for about 279 men. There are also 12 bunks in 4 rooms for chief petty officers. These are sometimes consigned to civilians or other passengers.

The wash room for men, forward on the berth deck, is well provided with shower baths and stationary bowls, and the water-closets, forward on the gun deck, contain a sufficient number of seats and urinals, which are easily kept clean.

There are 1 bath tub and 2 water-closets for the warrant officers and passengers messing with them, and the same for the ward room officers and their passengers.

There are no facilities for the transportation of women and children. However, on the return voyage in July, altho the vessel was already uncomfortably crowded, it was necessary to take on board 3 women and 2 children, and as long as this is the only navy transport on the Pacific coast the necessity for taking such passengers is always liable to occur.

EXTRACT OF REPORT ON THE U. S. S. MAINE.

By M. K. JOHNSON, *Surgeon, U. S. Navy.*

The wardroom water-closets have been rearranged and much improved. The supply system of ventilation for them, which has recently been installed, is objectionable on sanitary grounds, and should be changed to the exhaust system. No change has been made in the uncomfortable and insanitary condition of the water-closets of the junior officers. The quarters of the junior officers are totally inadequate, and are about half as large as those in other ships of the same class.

A serious sanitary defect exists in the operating room, sick bay, and sick-bay bathroom. The traps in the pipes from the urinals open into the operating room, the sick-bay bathroom, and the sick bay proper. These have to be opened and cleaned constantly, and the result is easy to imagine. This arrangement is dangerous and most insanitary. The bathroom has been improved by laying tiles on the deck and by installing a new tub.

There was no epidemic of any kind during the past year, and the general health of the officers and men was as good as could have been expected under the conditions of the service of the ship. Many recruits were found to have ailments which existed prior to enlistment and which, in some cases, were so marked as to cause astonishment at their not having been detected by the medical examiner.

All the living spaces of the ship have the supply system of ventilation. This works perfectly in warm weather, but in cold weather the reverse is true. Officers and men, during cold weather, close the valves, and the result is that for days the same foul air remains below decks. It is thought desirable that both the exhaust and the supply system should be installed on all ships and be made interchangeable, so that the former could be used in cold and the latter in warm weather.

EXTRACT OF REPORT ON THE U. S. S. MARBLEHEAD.

By C. N. FISKE, *Passed Assistant Surgeon, U. S. Navy.*

Thruout the year the health of the officers and crew, with few exceptions, was excellent, despite the fact that nearly half the time was spent in the tropical waters of Central and South America. This good record may be attributed partly to care on the part of the officers and men, but largely to the good fortune that no epidemic diseases occurred.

There continue, nevertheless, to be certain insanitary conditions of a structural nature, referred to in a previous report, which need not be repeated. The wash rooms are somewhat more satisfactory; the flushing system has been renovated, and a small ice machine, with cold-storage space sufficient for ten days' supply of fresh meat, has recently been installed.

Wherever additional space for galley, heads, wash rooms, drying rooms, ice machines, etc., has been taken, it was at the expense of the berthing space and living quarters, already insufficient. The chief petty officers have no pantry nor storeroom, altho they could be installed at small expense in the forward starboard corner of their mess room.

Five or six seats in the crew's head are far from fulfilling the requirements of the 270 enlisted men on board, and there are no special accommodations of this character for the chief petty officers. One short trough urinal has slightly bettered conditions.

The gun deck around the galley and under the break of the forecastle, which is largely a lounging place for the men, is almost always damp, and this, with drafts from gun sponsons and air ports, probably accounts for many colds and sore throats.

One large cumbersome bunk placed in the sick bay is most useful, but the space could accommodate two of the smaller folding bunks, one above the other.

Instruction in "first aid," aside from talks and demonstrations on emergencies incident to ship life, has consisted chiefly in drilling officers and men in the use of the "shell-wound packet," devised by Surgeon Stokes, U. S. Navy, and in the expeditious removal of the wounded from guns and machinery and conveying them to the berth deck by hand whenever feasible. At general quarters first aid is given the wounded by the two hospital apprentices at their dressing and tagging stations at the galley and at the break of the poop; muslin bags containing sterilized packets and torniquets are hung alongside each gun. Boards and stretchers can not be used as a matter of routine in the narrow spaces and hatchways. The medical officers' dressing station is in the chief petty officers' mess room, forward on the berth deck, with the sick quarters adjoining.

EXTRACT OF REPORT ON THE U. S. S. MARYLAND.

By G. T. Smith, *Surgeon, U. S. Navy.*

This vessel was placed in commission at Newport News, Va., April 15, 1905. From that date to the end of the year there were 523 admissions to the sick list, of which 474 were restored to duty, 28 transferred to hospital, 2 invalided from the service, and 19 continued to the next quarter. The average complement was 700 and the daily average of sick 17.65.

The ship cruised along the North Atlantic coast from Chesapeake Bay as far north as Boston. The health of the crew was generally good. Among the infectious diseases encountered were scabies, diphtheria, and mumps. Scabies was introduced the first day of commissioning and a number of cases developed. The chief source of infection was found to be the wooden seats of the crew's water-closet. Upon having these thoroly scrubbed twice daily with a one one-thousandth solution of corrosive sublimate the disease was practically eradicated. The most satisfactory treatment was found to be daily shower baths, using soft soap, and a thoro application twice daily of 2 per cent solution of formaldehyde in glycerin.

A large proportion of the venereal diseases were contracted at Norfolk, Va. It was deemed best not to send these cases to hospital. Nearly all those infected were able to perform duty from the first, and were under better control than they would have been in a hospital. In my experience the treatment of venereal cases is much more satisfactory on board ship. Two cases of diphtheria occurred while the ship was at the New York yard in September. They were promptly transferred to hospital and all precautions taken to prevent further infection. No new cases developed.

The sick bay is situated on the starboard side of the berth deck, forward of the armor belt. It contains 35 folding metal beds arranged in pairs. Its height is 10 feet, and the cubic air space per bed is 260 cubic feet. The operating room occupies part of this space forward of the dispensary. Its dimensions are 13 by 9 by 10 feet. It is supplied with all the instruments and appliances of a modern operating room. A Frinck reflector has been suspended above the operating table. It contains five 16-candlepower lamps and gives an excellent working light. An instrument and dressing sterilizer have been installed and are very satisfactory, altho the latter could be of larger size with advantage.

The bathroom is situated in the forward part of the sick bay on the starboard side and is also used for the treatment of venereal diseases. The ventilation of this compartment is by two supply and two exhaust pipes in the sick bay, one supply pipe in the operating room, and one exhaust pipe in the bathroom. The isolation ward is located on the berth deck on the starboard side forward, contains four folding metal beds, is ventilated by one exhaust pipe, and has been of the greatest use in the treatment of infectious diseases and the prevention of their spread. The dispensary is just abaft the operating room and is well equipped and commodious.

There are four large medical storerooms located under the outboard side of the sick bay, three in the sick bay and one in the dispensary. Their temperature, from steam pipes which pass thru them, is too high. By keeping gratings over them during the day instead of metal covers there has been no deterioration of the medical stores; it may occur, however, in the Tropics. Too much can not be stated in praise of the admirable medical equipment. It marks a new era in naval medicine and surgery. The sick and injured, both officers and men, can now be treated with a satisfaction to themselves and to the medical officers hardly hoped for in the past.

The following operations were performed: Bassini's, for the radical cure of inguinal hernia, 1; tonsillotomy, 1; Gerster's operation for unguis involutus, 3; hemorrhoids (external), 5; necrotomy of tibia, 1; circumcisions, 6; removal of cysts, 2; pterygium, 1; Kocher's operation for varicocele, 3; adenectomies, 3; suturing completely severed fingers, 2.

All were successful except one of the last two, in which the circulation was not restored in the severed parts.

To complete the medical outfit of this vessel, the installation of a steam sterilizer for the disinfection of clothing and bedding, a galvanic battery, and an X-ray apparatus is recommended.

The ventilation of the ship is very defective. Against all sanitary rules the exhaust system has been installed in the living spaces. The officers' quarters on the berth deck suffer especially from this condition. It is recommended that the system be changed to supply. It can readily be accomplished at a small cost without changing the fans or cutting thru the decks, by shifting the lead of the pipes.

The quantity and quality of the food furnished the crew has been very satisfactory, but its preparation could be much improved by the employment of trained cooks.

In preparing for action, the following station bill for the medical staff has been made: Two main dressing stations are located on the gun deck behind the armor belt, the surgeon in charge of one, with a hospital steward and two nurses, and the assistant surgeon in charge of the other, with a hospital steward and one nurse. The subdressing stations are located on the berth deck, one forward and one aft, in charge of two hospital apprentices. In action, the sick bay would be vacated and the firemen's wash rooms used instead.

For raising and lowering the wounded, two Ames's transportation boards have been supplied, one for the forward starboard coaling hatch and the other for the starboard hatch at frame No. 80. Litters are used for carrying the wounded along the decks.

EXTRACT OF REPORT ON THE U. S. S. MAYFLOWER.

By K. OHNESORG, *Passed Assistant Surgeon, U. S. Navy.*

The *Mayflower* was recommissioned at the New York Navy-Yard on July 25, 1905. The condition of the vessel from a sanitary point of view has been very good. Two defects, however, which are a menace to the health of those occupying the vicinity of the compartment in which they exist, are as follows: The drainage of the firemen's wash room is not satisfactory, owing to the faulty design of the suction to the hand pump. This could easily be remedied by a simple rearrangement of the suction pipe and installing another drain to the drain tank. The water ducts in the same compartment should receive immediate attention. These are continually in need of overhauling. The remainder of the plumbing thruout the ship is in good condition.

The ship has a complement of 172 officers and men. With the exception of the officers and 16 of the enlisted personnel, the crew are bunked in the extreme forward part of the vessel. The berthing space is insufficient from sanitary considerations. Sixteen of the engineer's force are bunked in a compartment forward of the engine room. This is fitted with folding bunks and is poorly ventilated. It is very hot and the air is stale most of the time. A blower could easily be installed to supply pure air to this compartment.

The health of the ship's personnel during the five months has been good. The admissions numbered 32, and were nearly all of a trivial character.

EXTRACT OF REPORT ON THE U. S. S. MINNEAPOLIS.

By O. D. NORTON, *Surgeon, U. S. Navy.*

During the past year the health of the officers and crew and the sanitary condition of the ship have been good. Four deaths have occurred—1 of pneumonia, at Guantanamo; 1 of endocarditis, at Newport; 1 of tuberculosis, at Gibraltar, and 1 of icterus, at Genoa. The heart case was admitted as asthma; no heart lesions could be detected; death occurred seven days after admission; the autopsy showed large calcareous plates on the aortic valves, with heavy ante-mortem fibrinous clots; death resulted from pulmonary œdema.

The men's "head" is in a very insanitary condition; the shape of the trough prevents thoro flushing, and from time to time the copper trough corrodes thru, causing leaks. The pungent odor of decomposing urine is always present and is increased by the hot water of the flushing system.

The temperature of the paymaster's storeroom, in which the ship's flour is kept, has been found to be over 110°. A clinical themometer was used which did not register over 110°. As the waste in the Navy of flour thrown overboard on account of its damaged condition is so great, it is suggested that the flour be tinned and the tins cased in wood, as is done in the Army. It is believed that the saving secured by this method would much more than pay for the cost of the tins.

On July 3 the ship left New York on special service connected with the eclipse expedition, with headquarters at Valencia. Two stations of observation were established, one at Darocca, 30 miles northeast of Valencia, the other at Porta Coeli, 115 miles from Valencia. With the astronomical parties were 90 men. The health of the stations was excellent. Camps were established for 35 days and shore water was drunk.

Sixty-two cases of venereal disease developed during the year, 52 of which were gonorrhœa, 19 of these were contracted in Valencia. Only 3 cases of syphilis primitiva developed.

The present location of the sick bay is forward on the berth deck in a very inaccessible place. It was necessary to cut an opening in the bulkhead to permit the passage of a stretcher. It is impossible to open the air ports at sea, and as the ventilation from above comes from the compartment containing the men's "head," the hatch must of necessity be kept closed. All fresh air comes from blowers. There are numerous leaks thru the deck overhead, on which are situated the men's water-closets. In the bathroom the pipes of the water-closet and bath leak in spite of all repairs that have been made at navy-yards and on board ship. The pitching of the ship, lack of ventilation, and leakage from the deck above cause much discomfort to patients compelled to remain in their bunks while the ship is at sea. One of the paymaster's storerooms opens into the sick bay, and it is a daily occurrence to have men in the sick bay breaking out boxes and stores. This gives rise to much dirt and disturbance. The main medical storeroom, located aft in the tiller room, can not be used for any purpose on account of the heat from the steam pipes that pass thru it and the constant leaks from these pipes. This storeroom can never be used as long as the present system of steam pipes passes thru it.

It is recommended that an adequate sick bay be built on the gun deck, with bathroom and dispensary attached, corresponding to the plans followed out on the U. S. S. *Columbia.*

EXTRACT OF REPORT ON THE U. S. S. MISSOURI.

By R. M. KENNEDY, *Surgeon, U. S. Navy.*

This ship spent 328 days in port and 37 at sea. The average complement was 718; the total number of sick days, 2,772; the daily average of patients, 7.59; the percentage of sick, 1.051. Venereal diseases caused a total of 682 sick days, or approximately 25 per cent of the total number of sick days. Twenty-two venereal cases were transferred to hospital out of a total of 73—about 30 per cent of the whole.

There was a mild epidemic of measles on board in the early part of the year—12 cases in all. The source of the infection was traced to the U. S. receiving ship *Franklin*, Norfolk, Va. The patients were carefully segregated on the after bridge, a very proper location in case of emergency, climatic conditions permitting, and, when opportunity offered, transferred from Culebra by tug to the naval hospital, San Juan, P. R.

To my knowledge there are but few defects in the ventilating system. At sea in very rough weather it becomes necessary to cover the openings on the forecastle of the exhaust blowers in the crew's head and the openings for the supply blowers of the marine compartment and the sick bay. It is also necessary to close the openings for the blowers ventilating the steering engine room, cabin, and wardroom abaft the diagonal armor.

The servants' lavatory, just abaft the firemen's starboard wash room on the berth deck, is without any artificial ventilation. It is recommended that a ventilating duct which traverses this space be tapt, thus establishing artificial ventilation. This space is practically without natural ventilation, and the air is close and foul. The urinal has been removed, causing material improvement of the air.

The amount of electric light furnished the officers' staterooms is insufficient. In each room are two outlets—one for an electric fan, the other for an electric light. A 16-candlepower lamp is all the light that is allowed each room, and this is not sufficient even in rooms provided with air ports. In order to obtain adequate light to read it is necessary to place the globe near the head. The glare and the heat, particularly in the Tropics, are very uncomfortable and must eventually result in injury to the eyes.

An additional ice machine has been installed, and there are now two machines with a cooling capacity of 3 tons per day.

The following relief stations for the wounded have been established: Upper-deck relief station, junior officers' quarters, mess room, and staterooms; gun-deck relief stations, warrant officers' mess room and five staterooms.

The dressing stations are inside the armor belt, berth deck, forward compartments, chief petty officers' quarters, and officers' quarters aft.

Hot and cold fresh water can be obtained in abundance from the ward-room, officers' bathroom, evaporator, officers' pantry, and engine room—all inside the diagonal armor belt.

All forms of athletics are encouraged and every opportunity given members of the several teams for practice.

Experience aboard this ship has clearly demonstrated that a hospital ship is necessary, not only for the comfort and welfare of the sick and wounded, but at times for the protection of the working crew.

It is recommended that the health record on the enlistment papers be revised so as to provide a space in which should be entered at the time of a man's transfer from a ship or station to another ship or station, any disease or injury he may have had. The terms now employed, "excellent," "very good," "good," "bad," etc., are of little value for the information and guidance of a medical officer.

EXTRACT OF REPORT ON THE U. S. S. MONADNOCK.

By J. M. Edgar, *Surgeon, U. S. Navy.*

During the year 1905 this vessel spent 17 days in Shanghai, 9 days in Amoy, 109 days in Cavite, 137 days in Manila, 1 day in Hongkong, 80 days in Canton, and 12 days at sea.

Five cases of enteric fever developed at Manila during the year.

The ship is in excellent sanitary condition, having had within the past two years the spar deck, cabin, and wardroom entirely rebuilt, and two "heads," one on either side of and aft of the forward turret, and the wardroom closet, just forward of the wardroom on the port side, installed. These are of the latest hygienic pattern, and even in extremely hot weather no odor from them is detected in the wardroom, which is but 10 feet distant. A new galley fulfils all that was expected of it.

The ship remained eight months at anchor in Manila Bay. It is believed that this period is too long for a vessel of this type to remain in the Tropics. The average temperature in the wardroom was 98°, in the dynamo room 120°, and on the berth deck 93°. During April, May, and early June the men suffered severely from prickly heat. Officers and men slept on the spar or the superstructure deck in good weather. The superstructure deck accommodates one-half the crew, swinging in hammocks and sleeping on deck. Side curtains protect from rain, but in the Tropics are seldom used on account of the elevation of temperature caused thereby. During cold weather the curtains are very useful and many men prefer this inclosed space to the berth deck.

Manila Bay is not unhealthy, but the continuous hot weather gradually causes relaxation of the mental and physical powers, a sallow appearance of the skin, and less redness of the lips and cheeks. Diseases, and especially venereal diseases, are much less prevalent than in China and Japan. Rheumatism, diphtheria, scarlet fever, measles, and all diseases of the respiratory tract are nearly nil. If the ship were to cruise in the northern waters of this station from April 1 to September 1, Manila Bay would be good cruising ground for the remaining months of the year.

The excellent commissary department has been generally appreciated by the crew. Manila has good markets, if we consider the army commissary department, both in regard to the quality of provisions and their prices.

For many years I have assiduously instructed the men in the prevention of venereal diseases, but in spite of all instruction, venereal infection has caused the largest number of sick days.

EXTRACT OF REPORT ON THE U. S. S. MONONGAHELA.

By W. S. PUGH, Jr., *Assistant Surgeon, U. S. Navy.*

During the past year the *Monongahela* has been the storeship at the naval station, Guantanamo Bay, Cuba. The ship requires many repairs and changes in order to keep it in good sanitary condition and allow its continued use in a tropical climate. The water-closets of the officers and men need renewal by modern appliances. The men's bath ought to be placed in a separate compartment from the toilet. The sick bay should be moved to the port side of the gun deck aft, some provision made for refrigeration to preserve meats, and the power of the plant for furnishing electric light and distilled water increased.

An operating room is badly needed. During my term of service at least a dozen major operations have been performed in the present sick bay, which, on account of defective ventilation and light, is unfitted for operative work.

The general health of the ship's company has been good. Cases of venereal disease have been surprisingly few, owing, possibly, to the regular inspection and treatment of prostitutes in Guantanamo.

EXTRACT OF REPORT ON THE U. S. S. NEWPORT.

By F. E. CAMPBELL, *Assistant Surgeon, U. S. Navy.*

The health of the crew has in general been excellent.

The average complement for the year was 160.15, daily average of patients 2, total sick days 732; 14 were transferred to hospital.

No change was made in the construction of the ship which affected its sanitary condition.

From April 23, 1905, to the end of the year, the ship cruised entirely in West Indian waters. While stationed at Santo Domingo City she was moored in the Ozama River for about 47 days. During this time mosquitoes were occasionally noticed on board, but never in large numbers. *Stegomyia fasciata* were found ashore in the vicinity in large numbers; *Anopheles* less commonly.

Liberty was given until sunset in several Dominican ports with a considerable number of venereal cases as a result.

It is recommended that the trough in the crew's "head" be replaced by a new one, porcelain lined; that a cold-storage plant be installed forward of the ice machine on the port side of gun deck; that two ventilators be placed over the galley; that folding bunks be substituted for those now in use in the sick bay, and that the ventilating system be remodeled.

EXTRACT OF REPORT ON THE U. S. S. NEVADA.

By F. C. COOK, *Surgeon, U. S. Navy.*

The sanitary condition of the *Nevada* under varying conditions of season and climate has been generally satisfactory and the health of the personnel has been good.

The artificial ventilation of the ship is excellent. When the hatches are battened down at sea the heat from the steam-steering engine causes some discomfort in the quarters of the wardroom officers, which are below the water line.

The floor of the bathroom adjoining the sick bay should be tiled, as the linoleum covering it decays and becomes a menace to health.

The installation of an ice machine is recommended. The total number of sick for the year was 1,309 and the daily average of patients, 3.5.

EXTRACT OF REPORT ON THE U. S. S. OHIO.

By G. H. Barber, *Surgeon, U. S. Navy.*

During the year the *Ohio* past 294 days in port and 71 days at sea. In the first quarter the cruising consisted of a run down the coast from San Francisco to Magdalena Bay, and later a short run to Santa Barbara and return. On April 1 the ship sailed from San Francisco for Manila, P. I., stopping en route at Honolulu and Guam and reaching Cavite on May 7. In the third and fourth quarters, the ship cruised in the China Sea, visiting the principal Chinese ports and Chemulpo, Korea, and returned to Cavite on November 21 for the annual target practise.

Considering the type and the large complement of the ship and the climatic conditions to which she was exposed during the greater part of the year, the health of the crew was excellent.

The average complement was 796.23; total sick days, 6,281; daily average of sick, 17.25, and percentage of sick, 2.13.

Venereal disease furnished 35.3 per cent of the total admissions, of which 8.1 per cent were due to syphilis and the remainder to chancroid and gonorrhea. The majority of venereal infections occurred in Chinese ports. During the last quarter of the year from 50 to 70 per cent of the sick days were caused by venereal disease.

At sea, in fair weather, the artificial ventilation of all compartments and storerooms below the gun deck is excellent. Underway, with a moderate head sea, there can be no ventilation of the forward compartment on the berth deck, which includes the sick bay, dispensary, operating room, and berthing space for about 50 men as well as all the store rooms below. This was brought about by placing the ventilator which supplies fresh air to the compartment forward on the port side of the forecastle so that in moderate head seas it must be unshipped. The same condition would prevail in the after compartment on this deck with a heavy following sea, owing to the location on the quarter deck aft of the supply ventilator. This compartment includes the admiral's and captain's cabins, the wardroom, mess room, and a majority of the staterooms, together with all the storerooms below. On the three occasions it was necessary to unship the ventilator on the forecastle, those patients too ill to care for themselves were removed from the sick bay to swinging cots on the gun or the superstructure deck, and the remainder of the compartment was vacated and used only at meal hours and for the performance of necessary duties. Unshipping the after ventilator on account of bad weather would be followed by the same bad results even to a greater degree, owing to the proximity of the evaporator room on the same deck. Correction of this defect was recommended by the board of inspection at the time of the acceptance trial. The remedy is a simple one and consists in removing the ventilators in question to the superstructure deck from which the remainder of the ship receives its supply of fresh air.

On the berth deck, forward of the machine shop and engine-room hatch, with a passageway on either side leading to the officers' quarters aft, is situated the evaporator room; it contains four evaporators and two distillers with a united capacity of 16,000 gallons in 24 hours. The after end of this compartment is situated directly over the high-pressure cylinders of the main engines below. At sea it is necessary to run the evaporators and distillers to their full capacity, and the temperature runs from 130° to 140° F.; in port it will average 120° F. It is believed that the temperature of this compartment might be lowered and the ventilation improved by the installation of a blower with an exhaust into the engine-room hatch close by.

On the gun deck, directly over the evaporator room, are situated the warrant officers' quarters, composed of a mess room, three doubled bunked and two single bunked staterooms; they are connected with the artificial ventilating system. The temperature thruout these quarters averages 98° F. in port and 105° F. at sea, and is due, in part, to their location over the evaporator room, and, in part, to the fact that the fresh-air ducts passing thru the evaporator room below deliver air at from 90° to 95° F. The quarters are practically uninhabitable. The officers have slept in cots on the quarter-deck or in the passageways on the gun and superstructure decks, in bad weather, since the ship left San Francisco in April. As the condition is distinctly insanitary and far reaching in its effects an attempt should be made to remedy it by the installation of a blower with a new source of fresh air, and by a redistribution of the air ducts.

The water-closets for both the officers and men, together with the flushing system, have given satisfactory results.

The sick quarters, when properly ventilated, will provide accommodations for the sick which could hardly be improved. A steam sterilizer should be installed in these quarters at the first available opportunity.

EXTRACT OF REPORT ON THE U. S. S. OLYMPIA.

By G. P. LUMSDEN, *Surgeon, U. S. Navy.*

The health of the ship's company has been very good. The entire year was past in the West Indies with the exception of a month at Pensacola, Fla. There were but few opportunities for liberty on shore, and those at unattractive ports where venereal diseases were prevalent. Vessels cruising in the West Indies should be sent more frequently to the United States for liberty and a change of climate.

The brig, on the orlop deck in the forward compartment below the head, has two cells which are not well ventilated, as the low air ports have to be closed at sea and often in port. A small electric blower should be installed for supply ventilation of the brig. The artificial ventilation of the amidship section has the receiving ducts of blowers 1 and 2 placed alongside the smokestack which heats the air supplied by them to the quarters and magazines below; this is most objectionable in the Tropics. The only artificial ventilation of the firerooms is the forced draft. Three cases of heat exhaustion occurred during the year. Electric blowers are needed to give an adequate supply of air to the firerooms. The ventilators of the forward firerooms are under the bridge and are low and covered.

The lighting of the gun deck could be improved by placing the lights overhead in the center of each half of the deck, instead of on the sides.

The cold storage needs overhauling. The proper temperature is maintained in only one of the two rooms, the starboard.

The solid metal target for rifle practise on board ship causes the bullets to spatter and rebound. It should be superceded by a target with permeable front, which would retain them and prevent injury by spattering.

A dentist is needed for this ship and squadron.

The percentage of sick for the year was 1.018.

EXTRACT OF REPORT ON THE U. S. S. OREGON.

By F. S. NASH, *Surgeon, U. S. Navy.*

The *Oregon*, a coast-defense battle ship, is not fitted for tropical cruising. The men can not occupy their billets and are compelled to sleep around the decks on a thin mat and blanket, which give them a hard bed.

On account of her low free board she takes green seas over the tops of the 13-inch turrets, so that the decks below are wet at sea and the men are forced to give up their mats on the decks and find great difficulty in securing a dry place to sit on. Their conditions at sea are pathetic.

The number of men has been in excess of her intended complement and suitable billets could not be found for them even under ordinary conditions.

On account of the heat and poor ventilation it is simply impossible for all her crew to live between decks.

The wardroom and junior officers suffer in their better quarters, sleep on deck in port and on the mess-room transoms at sea, and remain during working hours in the open air as much as possible.

The warrant officers' quarters are located on the berth deck amidships directly above the boilers, and are uninhabitable in a warm climate, especially at sea, because of their defective ventilation and of the heat from the uninsulated steel deck, which ranges from 95° to 110° F. These quarters could be moved aft to the space now occupied by the bathrooms of the wardroom and junior officers, which could be put into the unused parts of their water-closets. This would give sufficient room on the berth deck for better quarters for the warrant officers, and insulating the deck over the boilers and engines would make them inhabitable.

It is understood that the temperature of the quarters assigned to the marine guard sometimes reaches 122° F. They are always uninhabitable, but could be improved by putting ventilators in the forced draft blower down-takes in the 6-inch and 6-pounder ammunition hoists leading to the upper decks, and by putting in some overhead ventilators thru the gun deck. Electric fans could be placed at these different ventilators.

The artificial ventilation is accomplished by four steam-driven fans, which are not equal to the service required. The fan casings, heated by the engines adjoining them, in turn heat the air passing over their surfaces, so that it is often necessary to turn off the fans. The fans are too small and do not furnish air enough even when run at their full capacity. The magazines are ventilated into the living quarters and this brings hot, impure air to the men.

The bath tubs of the officers and the water-closets of the men and of the sick bay are often below the water line at sea and do not always drain.

The men's water-closets and washrooms can not be condemned in too forceful terms. There are 12 seats in the water-closet for the use of 650 men. These are poorly ventilated, and such ventilation as exists conveys the air over the seats into the living quarters. The water-closets should be removed to an upper deck, where they could be properly ventilated.

The ship should be fitted with shower baths for the men. The bathrooms of the engineer's department are too small, are very poorly ventilated, and the shower baths are difficult to get into and out of.

The flushing system is defective and the flushing water is generally hot, for the reason that the sanitary tank is directly over No. 2 fireroom and a portion of the flushing water passes thru the distiller before reaching-the sanitary tank. This aids in keeping the ship overheated.

The two small cells for prisoners are inboard, small, dark, hot, and very poorly ventilated. They are totally unfitted for the purposes for which they were intended. It has been found necessary to use other parts of the ship for confining prisoners, except those with short periods of solitary confinement to serve, and occasionally in these cases to lessen the term of confinement on account of the heat.

The ice machine is not equal to the needs of the ship. This could be partially remedied by placing it just forward of the canteen and arranging the canteen as a cold-storage room. At present the cold storage is quite distant from the ice plant. The arrangement suggested would place them close together.

The management of the general mess leaves little to be desired, and the good health of the crew is due, doubtless, in a great measure to its excellence.

The galley is not large enough to cook for more than 400 men.

The coppers are not sufficient for the ship's company. There are now three, one holding 80 gallons, one 50 gallons, and one 30 gallons. There should be four, each holding 80 gallons.

Mess men should be regularly employed as such; the system now prevailing of detailing new men each month causes green hands to be constantly engaged, who are wasteful, not tidy, and unskilled in handling food. The oven should be larger, as this one has failed to supply the demands on it. It could be placed in the forward drum room, around the smokestack, which could be fitted with a box for "raising" bread and keeping it warm.

The sick bay is too small for a cruising ship. This could be partially remedied by moving the fore and aft bulkhead farther inboard. At present there are only four bunks for the sick of some 650 men. Ventilators should be fitted into the deck plates above the sick bay to improve the air in port. The decks are constantly flooded at sea and the air becomes very hot and impure, as the system of artificial ventilation is utterly inadequate. The water-closet in the sick bay should be replaced by one of porcelain. The blacksmith shop should be moved from its present situation over the sick bay, as the constant hammering is annoying to the sick.

EXTRACT OF A REPORT ON THE U. S. S. PENNSYLVANIA.

By J. F. URIE, *Surgeon, U. S. Navy.*

The armored cruiser *Pennsylvania* began her existence on the active list of the United States Navy, March 9, 1905, on which date she was placed in commission for the first time.

The ship's structure may be represented best in a few words by an enumeration of her decks, taking into consideration at the same time her dimensions. These are as follows: Bridge deck, main deck, gun deck, berth deck, protective deck, upper and lower platform decks, holds, and inner bottom. Below the gun deck all the decks are divided into numerous water-tight compartments, and these subdivided into passages and storerooms in intricate detail of ship's architecture.

From the standpoint of ship's economy the berthing, messing, and living spaces are amply sufficient for the complement as at present laid down. The officers' quarters are commodious and well arranged. All the wardroom staterooms are furnished with inboard bunks, a much better situation, hygienically considered, than the outboard position, which obtains in the other rooms occupied by officers. The toilet equipment of the rooms, the standard outfit, meets the requirements peculiar to contracted space and limited sunlight and air supply to a wholesome degree. It is compact, open, and reduces the chances of contamination from dampness to a minimum. All officers' rooms have some daylight illumination thru air ports, but the artificial light, one 16-candlepower electric light in each room, is hardly sufficient to illuminate properly the larger of the rooms. However, as the light is a portable one no injury to eyesight is probable.

All the decks of the living spaces below the main deck are covered with linoleum, and this, being well varnished with shellac, insures a freedom from any dampness which might result from the frequent washing of decks. A separate compartment is assigned to the chief petty officers, in which folding steel bunks are installed and where ample messing facilities are provided. It is well lighted, and the ventilation is fairly good.

The berth deck is billeted for 50 hammocks, a number too large for sanitary security. Fortunately, it has not been found necessary to draw upon the capacity of this space to any such extent. The gun deck furnishes berthing for 643 men, the main deck for 272, and the platform deck for 98. There are therefore billets laid down on the plans for 1,064 men, not taking into consideration the petty officers, and, as the complement of crew and marines is established at 791, there seems to be no fear of danger from overcrowding.

The storerooms and holds are, as a rule, dry, and effectively ventilated, but of insufficient capacity for the needs of the ship. Complaints are made by several of the departments of the ship's organization of inadequate storage capacity, and the pay department is especially embarrassed by want of space for stores. A number of small storerooms in the after part of the ship, over the protective deck, are of little value on account of their small size, inaccessibility, and high temperature from steam pipes.

This vessel is especially well furnished with facilities for personal cleanliness. There are lavatories for the fireroom force, for petty officers, for servants, and the deck force has a large space devoted to this purpose in the forward part of the ship. Unfortunately, what might be a source of health and comfort and a stimulation to cleanliness is rendered inoperative by a fault of installation, which I most earnestly recommend to be remedied. There are on board this vessel 33 shower baths in different parts of the ship, designed to furnish both hot and cold showers—those of the enlisted force of salt water alone. The salt water to supply these comes thru the flushing system, the water of which, during the greater part of the time, is heated almost to the boiling point by passing thru the distillers. The water reaching the showers is of a temperature that prohibits its use for bathing purposes, even in cold climates. I am told by the engineer officer that the installation of another pump would remedy this defect and put into valuable operation 33 shower baths that are now infrequently, if ever, used.

A large, well organized and equipped steam laundry adds much to the comfort and cleanliness of the personnel and is of great value to the sick bay.

It would appear, with this ship as an example, that the difficult problem of efficiently handling the sewage of the large number of men necessarily concentrated in the confined limits of a war ship has very nearly been solved. The drainage system of the ship, as a whole, may be said to be an excellent one. Much trouble was occasioned in the early days of the ship's commissioning thru ignorance and malicious vandalism, but the plumbers' force of the ship was always equal to the repair work. The protective lining of the flushing pipes disintegrates under the heat of the flushing water, strips off, and clogs the valves so that the pipes require disconnection to clear them. It is claimed that this lining wears well with cold water but was not designed to withstand hot water, and this is another argument for the installation of an additional pump in the flushing circuit. The crew's head is of ample capacity; its construction is such as to insure a good sanitary condition with ordinary care, and a constant stream of water flushes the ejecta overboard. The officers' closets are, with one exception, on the gun deck, and are models of good design and construction. The closets on the berth deck are necessarily of complicated mechanism, but when properly installed, watched, and handled give little trouble. When out of order the cause is usually found to be ignorance or malicious intent to destroy. The drainage of all spaces used as wash rooms, shower baths, water-closets, etc., goes overboard thru properly constructed traps by gravity and flushing. These spaces are also fitted with floor drains, as are also the galley beds. The discharge of the wash rooms, shower baths, laundry, etc., on the berth deck is efficiently handled by electric pumps. The drainage of the bilges and inner bottom of the different compartments is under the control of the engine-room pumps and is never a menace to the ship's health. The adoption of mineral oil for lubricating purposes in the engine room has wrought a change for the better in the care of the bilges.

The system of artificial ventilation of this vessel is not up to the standard of efficiency of modern war-ship hygiene as established on the latest battle ships, notably that on the *Missouri*. On the *Pennsylvania* the double system is attempted, which, in my opinion, is always unsatisfactory in ship construction. The division of the ship into numerous ventilating units is without doubt an excellent plan, and the power furnished would seem to be theoretically sufficient to change the air often enough to insure purity; but the arrangement of the system is such that one set of fans is undoing the work of others, and unfortunately in compartments where the need of fresh air is greatest. The exchange of air in the compartments of the ship where artificial ventilation is attempted is brought about by 27 electrically driven fans of different sizes and powers. These fans, running at 1 ounce of pressure, are designed to give a change of air, as follows: In all quarters and living spaces, once in not more than twelve minutes; in all pantries, once in not more than six minutes; in water-closets, wash rooms, storerooms, magazines, and evaporating rooms, once in not more than eight minutes; in dynamo rooms, once in not more than three-fourths of a minute; in engine rooms and steering-engine compartment, once in not more than two minutes. Taking in detail the practical application of this plant, it is found that in the after part of the ship the compartments on the decks below the officers' quarters on the berth deck are all ventilated by supply alone, with exits thru the berth-deck hatches, one leading into the after wardroom country and two into the passageways of the junior officers' quarters.

In all the officers' quarters, staterooms, mess rooms, and countries the exhaust system prevails, with intakes, the air ports being closed, only thru the deck hatches and light trunks. It can easily be seen that, at sea with the steering engine in operation, the hot, vitiated air forced up from below by the pressure of the blowers finds its way into the officers' quarters, where it is drawn into their sleeping and eating compartments by the exhaust fans in operation there. This plan practically makes the after country and its adjoining staterooms almost uninhabitable in hot weather at sea with the air ports closed. Again, forward of the officers' quarters on the same deck, the supply system is in operation, both in the passageways on each side of the engine and fire rooms and in the different wash rooms leading from them. All these lavatories contain urinals. The air blown out of the after series of these compartments finds ready access to the officers' quarters also. The platform decks are amply supplied by the power at work in their different compartments, fore and aft, and the engine rooms, firerooms, and bunkers have a free current of air thru natural as well as artificial ventilation. The forward berth deck compartments, with two exceptions, are well ventilated. The sick-bay water-closet is furnished with supply service alone, the air from which has no outlet, except into the sick bay, when the air ports are closed. The isolation ward is ventilated by exhaust, which, of course, is correct. Unfortunately, however, when the air port is closed there is no intake except thru the doorway, which, if left open, defeats the object of isolation, and admits only air hot and vitiated by contact with the ice machine in the neighboring compartment.

The ventilation of the sick bay and operating room could scarcely be improved upon. Two large supply ducts and one exhaust duct provide a perfect change of air in the sick bay, and one supply and one exhaust fully meet the requirements of the operating room.

The chief petty officers' quarters are ventilated by exhaust with a hatch overhead leading to the gun deck for supply. At sea the exchange of air here is not especially good.

The gun-deck space depends upon natural ventilation entirely, and only in bad weather at sea is this insufficient, and then not to a marked degree.

I am forced to believe from practical experience that the only sure way of getting the best results from the power expended in artificial ventilation on shipboard is to depend on supply for all parts of the ship except such as are used for water-closets, lavatories, pantries, storerooms designed for volatile supplies, isolation rooms, and laundries, in which the exhaust system is indicated. There is little of sanitary interest to report on the engine rooms, firerooms, and coal bunkers. The engine rooms are roomy, well ventilated, and cool. The firerooms, of which there are 10, are rather hotter than the average ship's firerooms owing to the inefficiency of the boiler casings. When forced draft is in operation they are not uncomfortable. It has been noticed on the few occasions when forced draft was used that a number of the men subjected to its influences were afflicted to a mild degree with the nervous phenomena of caisson disease, even tho the pressure was slight. The coal bunkers are, of course, trying places to work in, but few men have been obliged to ask relief from duty on account of the severity of the service in them.

The steering-engine room is well supplied with fresh air, and the temperature is not excessive at any time. An electric circulating pump connecting the after tanks with the fresh-water mains is in operation in this compartment.

The space occupied by the electric plant is well placed and in excellent sanitary condition.

The magazines and handling rooms are especially well ventilated, both naturally and artificially, and adjoining passages leading to the ammunition hoists receive an abundant change of air.

The torpedo room is the largest in the ship in proportion to the number of men stationed in it. In fact there is really a serious waste of space in this compartment, and much of the area overhead could be utilized for storerooms without affecting the efficiency of the division of the ship's force stationed here. The air supply is generous, and a large trunk leading to the main deck provides a ready outlet to air supplied by the blowers.

The hospital plant of this ship exemplifies the fact that in vessels of this type the provision for the care of the sick has about reached the acme of development for peace conditions. The sick-bay space, high between decks and liberally supplied with fresh air, furnishes excellent accommodation for 23 permanent beds. These bunks, of the standard folding type, arranged in pairs, one above the other, excepting three single ones on the cofferdam, fully meet the requirements. The wire mattresses are not sufficiently supported and should be attached to the sides of the frame as well as to the ends. At present they sag to an undesirable degree. Small attachable trays for water glass, spit cups, etc., and trays for food should be added to the equipment. These have been designed and made on this vessel, but are of somewhat clumsy and rough construction. They could be made inexpensively of white enameled metal and would add much to the appearance of the sick bay and comfort of the patients. The sick bay is somewhat dark, its daylight illumination being received thru air ports on one side only. This is supplemented, however, by a sufficient number of electric lights.

The operating room, in design, situation, construction, and equipment meets every requirement of modern surgical procedure on shipboard, and is fully equal to any demands that may be made upon it. In fact, as a whole, it would do credit to any modern hospital on shore of much larger capacity. The artificial illumination furnished by a circular Frink reflector is satisfactory in every way. The equipment furnished by the Bureau of Medicine and Surgery is complete to the extent of surgical luxury. Considerable dust finds its way into the room thru the supply louvre even tho several thicknesses of gauze are used as a strainer over the outlet. I am of the opinion that the plumbing, water-heating apparatus, and sink could be left out of the equipment to the advantage of asepsis, and reliance placed on hand basins and hot sterile water brought directly from the distiller in the enameled water containers furnished in the equipment. In fact, in the routine of operative work on this ship, the plan is laid down to use only water at first hand from the distiller tap. The steam sterilizers give a sense of security to the operating surgeon and, for the large majority of ship's surgery, are sufficient. It is a question if they are large enough for major work without occasioning delay.

The lavatory is large, well lighted, and generously equipped. Its only fault is in its ventilation, which was discust under that general head. The dispensary is well planned and equipped, and of sufficient size. A glass top to the dispensing counter should be a part of the fittings of all dispensaries, and with a small outlay the cofferdam could be utilized to advantage for a working bench. This latter would make an excellent stand for an X-ray plant.

The isolation compartment fills a long-felt want in medical work afloat. It not only gives a feeling of security in times of threatening invasion of contagion, but its use as a venereal ward when not serving for strict isolation is of great value. The room is amply large, contains four bunks with cofferdam space for one more, has an air port and a large metal locker. The irrigation treatment for gonorrhea is given in this room. The only criticism of it offered is on its ventilation. The unexplainable fault of construction in not providing an intake for air to replace that withdrawn by the exhaust fan should be speedily remedied.

It is to be regretted that in the construction of the modern fighting ship provision is not made for stations within the armor protection for the surgeon's division in action. It would seem that, if this subject were given consideration in developing the plans of a ship, suitable places could be designed and equipped with avenues of transportation for handling wounded men with a minimum of suffering, without encroaching upon the space demanded by the peace routine of ship life. A space thus provided could be utilized for other purposes when on a peace footing, and given to the surgeon's work when hostilities were imminent and when the numerous articles of ship's equipment now labled "overboard in action" were removed.

The space on the gun deck of this vessel for the printing office and library and the laundry on the berth deck, both within the citadel, have been selected as dressing stations in action. Neither is suitable for the purpose. The first is intended to meet the needs of the gun deck, fore and aft; the second those of the berth deck and all below it, and the bridges, bridge deck, and main deck thru the torpedo room trunk. The only available place to which the wounded can be removed after having their wounds drest are the wash rooms leading out of the berth-deck passages on each side of the fire and engine rooms trunks, places of more than doubtful security from a surgical standpoint.

There are two commodious and well-ventilated brigs in the berth-deck compartment abaft the sick bay. These are insufficient for the number sentenced to punishment by confinement. A vessel with a crew of nearly 800 men should be fitted with more than two cells.

There is an excellent bakery well situated on the main deck forward the galleys, and its output is excellent. Numerous mechanical devices for preparing food for cooking, which reduce its handling, give satisfaction.

The cold-storage space is of such capacity as to insure fresh meat as a part of the daily ration most of the time. It is of doubtful economy, however, to depend on one ice machine for the preservation of the large store of meat usually on hand. The breakdown of the machine would mean great loss.

For sanitary reasons a dish-washing machine would be a valuable addition to the messing equipment. A machine set up on this ship was so badly placed that its operation was impossible. A specially designed place with impervious walls and floor, racks for utensils, and carefully planned drainage is a requisite for a dish-washing plant.

The health of the ship's company has been good. The isolation ward of the sick bay made the handling of a few cases of rubeola and measles an easy problem and was of great value as a disinfecting chamber for clothing and bedding.

The ship derives its water supply wholly from the distillation of sea water. There are four sets of water-distilling apparatus, one evaporator and one distiller, so called, and each set with the full capacity of 20,000 gallons per day. The normal needs of the ship are from 8,000 to 10,000 gallons daily.

The health of the ship's company has been good during the ten months that the vessel has been in service. There have been no deaths and no serious invasion of contagious diseases.

EXTRACT OF REPORT ON THE U. S. S. PRINCETON.

By J. D. MANCHESTER, *Assistant Surgeon, U. S. Navy.*

The sanitary report of this vessel for the year 1905 includes the period from May 12, 1905, when the ship went into commission at Mare Island Navy-Yard.

The average complement of officers and men was 136; total number of sick was 37; total number of sick days, 288; daily average of patients 1.45, and percentage of sick 0.80.

There were 37 admissions, no readmissions, 4 transferred to hospital; 1 death occurred from asphyxia ex submersione at Panama. The body was never recovered.

The artificial ventilation is very good and is furnished by electric propulsion blowers, which are in excellent condition. The engine and firerooms are ventilated by natural means thru large ventilators which have proved sufficient, both compartments being remarkably cool, no complaints having been made on account of excessive heat, and no heat exhaustion having occurred.

The dynamo room is ventilated by one large propulsion blower and a ventilator from deck which is used as an exhaust. The temperature of this room while in Panama averaged 115° F.; in San Francisco from 88° to 90° F.

Two salt-water showers are supplied for the crew, but as no means for heating the water is furnished they are of little use when the ship is out of the Tropics. Two showers, fresh and salt, hot or cold, are furnished the officers, and are in excellent condition.

No ice machine nor cold storage is provided. An ice machine is badly needed, as so much time each year is spent in the Tropics.

The brig consists of one cell with a cubic capacity of about 300 cubic feet. It is situated forward on the berth deck, opening into the chief petty officer's compartment. Its ventilation is poor and is carried on by means of one small propulsion blower, thru a grating over the door and perforations in the door. There is one port which can not be opened as it is too near the water line.

There are two distillers, with a maximum capacity of 1,500 gallons each, being usually run at one-half capacity. The one evaporator has a maximum capacity of 3,000 gallons, with a usual capacity of 1,500 gallons.

The arrangement for the care of the sick is very good. A sick bay and bathroom combined, with a capacity of 721 cubic feet, and a separate dispensary, with a capacity of 420 cubic feet, are amidships on the port side of the gun deck. The two folding beds are sufficient for ordinary needs. The ventilation is by three ports in the sick bay and two in the dispensary, which can in ordinary weather be kept open at sea, and thru gratings which run the entire length of both, next to the upper deck, and open into the crew's compartment.

The health of the crew during four months in Panama this summer was excellent up to the last month, when a general condition of depression began to show itself, but which was not sufficient for admission to the sick list. The absence of fevers was due to the fact that no liberty was given in Panama.

EXTRACT OF REPORT ON THE U. S. S. RALEIGH.

By A. FARENHOLT, *Surgeon, U. S. Navy.*

The general health of the crew was good and may be graphically shown by the following: Average complement, 339; daily average of patients, 4; total sick days, 1,463; percentage of sick, 1.18, and transferred to hospital, 29.

The percentage of venereal sick days was high, 34.1 per cent, while the percentage of sick days from injuries was 16.9 per cent. The remaining sick days resulted from unimportant causes and no cases of special interest occurred.

There are several structural defects in this vessel which should be mentioned and given attention. The men's "heads" are faulty in design and are with difficulty kept in fair sanitary condition; the wardroom and warrant officers' closets are also unsatisfactory in style and there is no urinal, a necessity much needed. The sick bay is in the eyes of the ship on the berth deck, and is small and difficult of access; it would be advantageous to remove it from its present site to one of the compartments farther aft; part of the present space for marines would serve very well. The ventilating system is of an old type and not satisfactory.

EXTRACT OF REPORT ON THE U. S. S. SCORPION.

By R. G. HEINER, *Assistant Surgeon, U. S. Navy.*

With the exception of a large number of venereal cases, mostly during the last quarter, the health of the crew thruout the year was good.

The sleeping quarters for the men were much overcrowded until last summer, when at the League Island Navy-Yard the bridge deck was extended over the gangway and hooks for hammocks put up, so that now about one-half of the crew sleep in the open air. The ventilation of the berth deck is very poor, especially at sea, and the shaft alley, which is used as a workshop and in which is located the sanitary tank, has practically no ventilation. There should be installed a ventilating system to supply fresh air to all the living compartments and workshops.

The evaporators furnish an adequate supply of good water for cooking and drinking purposes and enough for baths, but there are no bathing facilities for the men. They should have a shower bath.

The sick bay is so small that there is no room to unfold the operating table, and the wooden cover of the bath tub has been used for the few minor operations that have been done.

There is an ice machine which, when it is working, keeps the water in the scuttle butt cool and meat from spoiling in the cold storage.

The "head" for the men is well located forward and separated from the berth space by the carpenter shop. There is a constant flow of water thru the troughs, which keeps them well flushed. Weekly inspections were made, and all water-closets, urinals, and wash basins kept free from dirt and odor. The sanitary tank was cleaned out constantly with lye and hot water, followed by steaming, and then washt with a solution of carbolic acid.

Baseball, boat racing, and seining parties were encouraged and greatly helped to keep the men in good health.

EXTRACT OF REPORT ON THE U. S. S. SUPPLY.

By R. B. CHAPMAN, *Assistant Surgeon, U. S. Navy.*

During the past year the health of the ship's company has been excellent.

Returning from China to Guam one case of variola developed, but a prompt transference of this case ashore and a thoro disinfection of the ship with formaldehyde prevented any spread of the infection.

The majority of admissions to the sick list were for boils and tropical ulcers which yielded promptly to treatment.

In September a trip was made to the German island of Saipan to render any assistance that might be needed on account of great damage reported to have been done by a typhoon. The damage was found not to be so extensive as was supposed, but all medical supplies had been ruined. Enough of the ship's medical stores were transferred ashore to relieve immediate necessities.

Recommendation was made that the ventilation of the fire and engine rooms be increased, as the supply of fresh air to these rooms was inadequate for tropical service.

EXTRACT OF REPORT ON THE U. S. S. TACOMA.

By J. J. SNYDER, *Passed Assistant Surgeon, U. S. Navy.*

The ship has been described in a previous report to which nothing of interest can be added except that the ventilating system has been changed in the living spaces from the exhaust to the supply system with marked improvement in the ventilation, especially when the ship is under way.

The health of the crew has been very good, and no epidemic diseases have occurred.

The following changes are recommended: The ice machine is not equal to cooling the water in the scuttle butt, keeping the cold-storage room at a sufficiently low temperature to preserve its contents, and making sufficient ice to preserve fresh provisions not in the cold-storage room, and either a larger machine should be installed or a second machine of the same capacity be added.

The decks in the crew's water-closets and shower bath in the manger on the gun deck, and in the wash room of the engineer's force on the berth deck are covered by a dark gray cement which is darkening by use, and always presents a dirty appearance. It should be replaced by white tiling similar to that in the officers' bathroooms.

EXTRACT OF REPORT ON THE U. S. S. TEXAS.

By C. H. T. LOWNDES, *Surgeon, U. S. Navy.*

As my duty on the *Texas* dates from September, 1905, this report must of necessity be largely compiled from the records of the medical department of the ship.

With the exception of the time in Guantanamo Bay, from January 28 to March 22, the year has been spent in home waters. Tho the health of both officers and men has been on the whole satisfactory, an appalling amount of venereal disease has existed. Of the sick days for 1905, more than one-fourth were due to venereal disease; to be more accurate, the total sick days for 1905 were 2,127, of which venereal disease gave 581. Of 42 cases transferred to different naval hospitals, 16 were of venereal origin.

When instruction in first aid is given, the crew should be told that gonorrhœa, with its complications and sequela, and syphilis, even when apparently cured, are very serious diseases. Such instruction would prevent at least a few men from exposing themselves.

The new sick bay, dispensary, operating room, and medical storerooms have proved most satisfactory. When the *Texas* goes again to a navy-yard for repairs the steam pipes leading to the crew's bathroom, which at present pass thru the sick bay, should be removed, and additional ventilation provided by tapping the ventilating shaft which passes below the deck, thru the medical storeroom. A small isolation ward is urgently needed; such a ward could be constructed by using the equipment yeoman's office, formerly the old dispensary, or by taking a small space in compartment A-113.

The ventilation of the ship has been much improved by the following changes: A 60-inch electric blower has been installed in evaporating room, replacing a steam blower, and supplying ventilating system forward. A second 60-inch electric blower has been installed in machinists' wash room, replacing old steam blower and supplying general ventilating system aft. A 50-inch electric blower in forward handling room supplies dynamo rooms. A 50-inch blower in redoubt supplies after berth deck, machinists' wash rooms, etc. A 50-inch electric blower supplies berth deck amidships.

EXTRACT OF REPORT ON THE U. S. S. TOPEKA.

By J. STEPP, *Passed Assistant Surgeon, U. S. Navy.*

There are two water-closets for the crew, ample in size and well situated, forward on the gun deck. They are of inferior finish and poor structural type. The floors are of a rough porous concrete, constantly damp from urine and washings. There is a constant odor of decomposed urine in these compartments in spite of the daily cleaning they receive. The troughs are lined with cement, which from long use has become disintegrated and presents an uneven surface. While a constant stream of water flows along the bottom of these troughs from a 2-inch pipe at the forward ends, it never reaches the upper part of the sides, which consequently accumulate excreta and filth. The seats are wooden, separate, and detachable. From steady use and washing they are always wet or damp, and, like the floors in these compartments, are foul. They are separated by sheet-iron partitions in frames, which afford still more surface and crevices for excreta and parasites. Each head has a small iron urinal trough, backed with metal and flushed by a perforated iron pipe running along the top. These urinals are altogether too small, and their constant use, together with an insufficient flushing system, have caused them to become eroded and foul. These compartments should be thoroly gutted of all they contain, including the iron partitions between the water-closet seats, and an entirely new outfit put in with glazed tiling or some nonabsorbing surface for the floor, porcelain-lined metal troughs and urinals, and better flushing for all parts. The partitions between the seats should not be replaced, nor should the seats be separate. They should all be cut in one board, and there should be two or three sets, with a system of daily change and scrubbing. Racks could be provided on deck where the extra set of seats could dry and air. In this way each morning the crew would have clean, dry seats.

In the officers' water-closets new modern bowls and plumbing should be installed. The bath tubs are of the enameled iron type, and are in fairly good condition, altho discolored by age. The plumbing of the bath tubs should be thoroly overhauled, and in place of the present worn-out salt-water showers hot and cold fresh and salt water showers of the most approved modern type should be put in. The finish of the compartments containing these closets and baths is very poor and rough with numerous crevices and square corners. The finish should be smooth, with rounded corners and tiled flooring. There are no bathing facilities for the crew other than a small washroom for firemen. Sufficient showers and not bath tubs should be installed.

Altho some repairing has been done and remedial measures have been taken from time to time, the condition of the gun deck remains the same from a sanitary point of view. The drains of the scuppers on the gun deck are so poorly placed that the water does not escape at the lowest level, but must be swept over the side. As water is constantly coming in on this deck thru the badly constructed gun ports, pools of water mixt with scraps of food and other detritus tend to lie in the waterways, which are kept clean only by constant attention, and are seldom dry. It is urgently recommended that these drains be placed at the proper level. The gun ports on the gun deck are so imperfect and of such light construction that when carefully closed they do not keep out the water even in a moderate seaway, and so at sea this most used and inhabited part of the ship is damp and unwholesome, and several inches of water constantly stands on the deck. For the health and comfort of the men this deck should be dry and warm. More carefully fitted and heavier gun ports, allowing tight calking, and properly placed drains would go far to secure this desirable condition, and these changes are earnestly recommended. There is also another source of wet and dampness on the gun deck at sea, and this is the shipping of seas thru the hawse pipes. Great quantities of water rush in and flood the gun deck, in one instance as far aft as the galley. On no consideration should this ship proceed again on a cruise until these defects have been remedied.

Since the installation of cots, lockers for patients' clothes, and apparatus for heating water and sterilization, the sick bay is all that could be desired on a ship of this class, with the exception of the plumbing. The water-closet and bath tub now drain below the water line, which necessitates the removal of their contents by a hand pump. This pump is of old type, and from long use requires constant repairing. A modern water-closet and bath are recommended for the sick bay.

The motion of the ship even in a very moderate seaway is at times extremely uncomfortable, and in heavy weather her rolling qualities are so extreme as to make her notorious in the service. On such occasions she has rolled 50°. Such rolling makes duty extremely difficult and dangerous, as is shown by the records of accidents caused by it. Only recently, on the last run from the West Indies to Portsmouth, N. H., the chief electrician was ruptured by being thrown on the forecastle when the ship was rolling between 30° and 35°. In protracted bad weather the excessive motion of the ship has taxed human endurance and made the condition of the men pitiable. It is earnestly recommended that bilge keels of some sort be attached to the ship, or that something else be done to reduce her rolling.

The system of artificial ventilation is fairly satisfactory. It is recommended that the wardroom be supplied with two large square ports, similar to those in the wardroom of the U. S. S. *Dixie*, which can be kept open in tropical harbors. The ship now has on the port and starboard sides of the gun deck forward two large cargo ports, which give the crew much comfort, and the cabin has two square ports of smaller size, which have proved a source of much comfort to the commanding officer. As the wardroom is on the same deck and well above the water line, two large square ports could be easily cut, and when one considers the great sanitary benefit of such a change it can not be too earnestly recommended.

During the recent cruise in the West Indies attention was frequently directed to the marked degree of heat in the warrant officers' quarters. On investigation it was found that two 12-inch ventilators abaft the engine-room hatch pass thru their quarters and produce this unnecessary heat. These ventilators were intended to supply fresh air to the after part of the engine room, but practically they exhaust the hot air from the engine room. They take a very indirect course for either purpose, and in one place pass directly thru the mess room and forward staterooms of the warrant officers. It is earnestly recommended that these ventilators be arranged to take a direct course thru the engine-room uptake and not thru the officers' quarters.

EXTRACT OF REPORT ON THE U. S. FIRST TORPEDO FLOTILLA.

By C. E. STRITE, *Assistant Surgeon, U. S. Navy.*

The First Torpedo Flotilla consists of the torpedo-boat destroyers *Decatur*, *Bainbridge*, *Dale*, *Chauncey*, and *Barry*.

The first half of the year was spent cruising among the southern Philippines, the second half along the coast of China. During the year the health of the crews was very good.

The defects in the construction of these ships were mentioned in a previous report and some of them will bear repetition. The "head" is located in the bow, communicating directly with the men's quarters. As about 80 men have to use the "head" the door is necessarily opened many times during the day, and at sea, especially when all air ports and ventilators are closed, foul air permeates the forecastle, making it very unpleasant and unhealthy for the men.

As there is no sick bay, the sick must breathe the same contaminated air. If a place could be found on deck for the "head" it would be a great improvement.

Sick call is held in the forward conning tower, which is the only available place. It is much too small, and at sea is noisy and hot on account of the steam steering engine located there. All medicines in constant use are kept there in a small locker, and the remainder stored in a locker in the tiller room. There being over 400 men in the flotilla it is impossible to carry sufficient stores for the entire flotilla in the space allotted on one ship.

The men could be made much more comfortable were a bathroom, no matter how small, provided for them. At present they are compelled to do all their bathing on deck, which is decidedly uncomfortable in cold weather. Besides, as the flotilla generally anchors near shore, the men are naturally much exposed unless canvas is placed around the deck.

EXTRACT OF REPORT ON THE U. S. SECOND TORPEDO FLOTILLA.

By W. G. FARWELL, *Assistant Surgeon, U. S. Navy.*

The vessels at present composing the Second Torpedo Flotilla are the *Hopkins, Lawrence, Macdonough, Stewart, Truxtun,* and *Worden.* The *Whipple* and *Hull* were in the flotilla early in the year, but were put out of commission in the spring and summer.

The itinerary has been as follows: West Indies and Pensacola during the winter and spring; the summer cruise with midshipmen on the New England coast; the fall at Provincetown and Norfolk, and December at Norfolk, with the exception of a brief run to Newport.

Of the six destroyers in the flotilla, four represent different types, the *Lawrence* and *Macdonough* differing especially from the rest in being much smaller and in having the officers' quarters forward and the compartments for the crew aft—a poor arrangement, as the space under the turtleback, the largest in the ship, should be given up to the crew. In these two vessels there are no air ports in the crew's compartments, artificial light only is used, and ventilation is effected by blowers and deck ventilators.

All the flotilla except the *Worden* and *Truxtun* have the galley on the main deck, the best situation from the standpoint of comfort and sanitation. The galley on the *Worden* and the *Truxtun* is on the berth deck just ahead of the forward fireroom, and often becomes very hot. It is recommended that the galley in these two ships be put on the main deck.

The water for both drinking and washing comes from the same tanks, there being three on the *Worden* of 3,787 gallons total capacity. When the flotilla is at the different navy-yards, these tanks are filled with the yard water to save the distillers. This is a dangerous procedure, as the quality of the water can not always be ascertained beforehand, and is especially objectionable at Norfolk, where typhoid fever seems to be always present. It is strongly recommended that either a separate tank be installed for drinking water or that one of the present tanks be filled with distilled water, and that tank alone used for drinking purposes.

The crews' heads are satisfactory, are situated on deck beneath the bridge, and have a smooth metal trough, which is flushed by a constant stream of water; the wooden seats are taken on deck and scrubbed every day.

The officers' toilet in two of the vessels is placed well aft the wardroom, but in the others it is put between the executive officer's room and the office. If the hand pump that drains it is not worked enough or gets out of order, offensive odors are noticed in the officers' rooms, due to the close proximity of the toilet.

The vessels are good sea boats, and have satisfactory ventilation by hood and mushroom ventilators and air ports. In warm weather canvas wind sails are used in the engine rooms, with very appreciable results.

While the flotilla was at Norfolk in December, all the medical chests were thoroly gone over and refitted preparatory to the winter cruise in the West Indies. At the same time, while the *Worden* was being docked and painted, the dispensary was overhauled, painted, and racks for several dozen more bottles were put in, using a previously vacant bulkhead and the doors of lockers.

The dispensary, which is on the *Worden,* is so small that there is barely room for two persons to stand in it at the same time, and when patients have to be examined lying down it is necessary to use a mess table out on deck for the purpose. On account of this lack of space and the great difficulty in keeping surgical instruments and dressings aseptic, anything but minor surgery is impracticable.

As there is no sick bay in the flotilla, men who are ill have to be kept in their bunks and treated there, a matter of difficulty owing to the confined space, noise, and constant vibration when the boats are under way. Added to this is the fact that often when cruising patients can not be seen for two and three days at a time. Patients have therefore been transferred to hospital whenever they showed serious symptoms or a likelihood of staying on the sick list for some length of time.

During the past summer and fall numerous recruits were sent to the flotilla from various receiving ships, many of whom had been in the service only two or three weeks. This is an unsatisfactory procedure, owing to the fact that men totally unused to sea life do not have the proper standard of health and that the greater freedom of action and responsibility which must necessarily be accorded to the enlisted force of torpedo boats should not be given to recruits whose mental, moral, and physical attributes are unknown.

The health of the flotilla during the year was very good, with the exception of a dozen cases of febris remittens on the *Stewart* and *Worden* at New London, Conn., in

August, the usual number of venereal cases, and an epidemic of catarrhus epidemicus on the *Macdonough* at Newport, R. I., in December, in which the whole engineer's force was affected—a condition due in part at least to the sudden change in temperature of about 70° F. in coming on deck from the hot fire and engine rooms.

EXTRACT OF REPORT ON THE U. S. S. VILLALOBOS.

By W. D. OWENS, *Assistant Surgeon, U. S. Navy.*

During the present year the U. S. S. *Villalobos* cruised on the Yangtze River with the following itinerary: Shanghai, Chin-kiang, Nankin, Ganking, Kewkiang, and Hankow.

The space allotted to the medical department is situated forward on the berth deck and has many disadvantages, but unfortunately the limited deck area does not allow more elaborate accommodations.

Ventilation of the berth deck is all that could be desired. Circulation of fresh air is assured by the supply and exhaust systems, aided during the summer months by electric fans.

The boiler room, situated forward of the engine room and communicating freely with it, has two large supply ventilators, which can always be depended upon to furnish the desired maximum quantity of fresh air. The engine room receives its supply of air mainly from the boiler room, two large hatches and one small hatch acting as exhausts, and a constant supply of fresh air is always circulating through these two compartments. The maximum temperature of the engine room is 120° F., and no cases of heat exhaustion have occurred.

The ship is heated by the steam coil system, which is satisfactory.

A new evaporator has been installed and the distilling plant now has a capacity of 1,000 gallons per day, the quantity of water being abundant and its character generally excellent.

The bathing facilities are inadequate, and a shower bath would add much to the cleanliness and comfort of the crew.

An ice machine should be placed aboard all gunboats cruising on the Yangtze River, where shore ice is especially dangerous as a source of infection and often can not be procured even for the treatment of the sick.

The food supply, both in quantity and quality, has been very good, and special precautions have been taken to insure protection against cholera and typhoid fever. All suspicious fruits have been prohibited, and no vegetables allowed to be eaten unless previously cooked.

The water-closets for the wardroom and those for the crew are on opposite sides of the galley. To meet this unfortunate proximity and its possible insanitary results, a constant flow of water is employed in both closets, with the free use of deodorants and germicides.

The ship is lighted thruout by electricity.

When one considers the insanitary conditions of the Chinese cities along the Yangtze River, the necessity for every precaution against endemic and epidemic diseases is manifest.

The greatest and most uncontrollable conveyor of infection from these cities is the mosquito. Two varieties, the Culecina and the Anophelina, are present. Out of some hundreds caught on board only two were Anophelina. To protect the men of ships employed on such duty against malaria, filariasis, many forms of skin diseases, and possibly dengue, it is essential that a mosquito net be provided each man as a part of his equipment.

EXTRACT OF REPORT ON THE U. S. S. WEST VIRGINIA.

By E. S. BOGERT, *Surgeon, U. S. Navy.*

The *West Virginia* was commissioned at Newport News, Va., February 23, 1905. Early in April the ship went south for drill and remained six weeks in the waters about Culebra. From the latter part of May to the close of the year she cruised between New England ports and the mouth of the Mississippi River. Thus opportunity was afforded to observe the hygienic conditions on board under varying conditions of climate and temperature. Despite the fact that the vessel cruised under favorable auspices, the percentage of sick was high, being 2.4 per cent.

The total complement of men and officers is 847, and can be hygienically berthed as far as air space and protection from the weather are concerned.

The ventilation, while excellent in some respects, leaves much to be desired in others. The engine rooms, firerooms, berth-deck passages, sick bay, magazines, and most storerooms are very well ventilated. The firerooms are especially well ventilated, and even in tropical climates the temperature does not rise to heights dangerous to the men working the fires. The ventilation of the officers' water-closets and of the head is also good. At both the forward and after ends of the berth deck the ventilation is by the exhaust method. At sea all air ports on this deck must be kept closed, and the forward hatches are generally closed. As a result the hot air from the drum rooms enters the berth-deck passages and, banking up at either end of this deck, is sucked thru the blowers, so that the forward and after compartments are supplied with hot vitiated air instead of fresh air. The ventilation of these compartments, which include the living quarters of the commissioned, junior, and chief petty officers, as well as the cells, should be changed to the supply system at the earliest convenient opportunity. This change can be effected at slight expense, and in most cases by simply changing the lead of the pipes from one to the other side of the fans. The isolation ward for contagious diseases is included in the exhaust system. As this room should be and is nearly air-tight, a partial vacuum is created when the blowers are run at sea with the air ports closed. The gun deck is not supplied with means for artificial ventilation. Over 500 men are berthed on this deck. In cold weather or in rough weather at sea the port shutters must be shipped; in a head sea the coaling hatches must be kept closed to protect the men swinging beneath them from spray; in consequence, and even when the port shutters are not fitted, the air on this deck becomes very foul at night. There can be no question that artificial ventilation of this space is needed, and that it would much improve the sanitary conditions of the space for sleeping quarters. Efficient ventilation of this deck would decrease admissions to the sick list for tonsilitis, furuncle, and other mild infections and tend to limit the spread of infectious diseases. I desire, therefore, to invite attention to the advisability of installing artificial ventilation by the supply method for the gun-deck compartments of all battle ships and cruisers in future.

The berth-deck wash rooms inside the casemate armor present the grave defect of always being more or less flooded. The means of freeing these wash rooms of waste water have proved inefficient. It is recommended that "Hermes ejectors" or pumps of sufficient capacity be supplied to keep them free of water.

The head is ample in accommodation and well ventilated, but the iron flooring is difficult to keep clean and free of rust. A suitable tiling laid over the present iron floor plates would greatly improve the sanitary condition of this space.

The deck houses on the main deck inside the superstructure, exposed to the direct rays of the sun and more or less cut off from the wind, reach a very high temperature in hot weather. They include two staterooms for warrant officers, printing office, wireless-telegraph room, bakery, and crew and officers' galley. While in Culebra last April the temperature in the staterooms did not fall below 90°, even at night, and the temperature in the crew's galley reached 150° in the daytime. Since then electric fans have been installed in the galley, but it is doubtful if they will be able to reduce the temperature to any marked extent. The staterooms are occupied by two warrant machinists, and are uninhabitable in the Tropics, as these officers can not obtain the sleep necessary for the preservation of their health and efficiency. They should be abandoned as living quarters and staterooms for the officers quartered therein fitted up on the gun deck. These two rooms could be converted into an excellent canteen. It is recommended that the fore-and-aft bulkhead between the wireless-telegraph room and the printing office be pierced with openings large enough to permit a free passage of air from the weather to the lee side. The temperature of these deck houses in the Tropics would be materially lowered by protecting them from the sun's rays with awnings stretched over the bridge deck.

The galleys are well arranged, but the crew's galley should be fitted with an additional copper of large capacity.

The cold-storage space for the crew is not of sufficient capacity, as it will accommodate fresh provisions for but twelve days. This capacity is obtained only by close packing. It is desirable that fresh meats should be hung instead of piled up.

The medical equipment of this vessel represents a distinct advance. The sick quarters are ample in size, well arranged, and suitably situated. The isolation room for infectious diseases has had its value demonstrated.

Mumps appeared among the men sent on board from the U. S. R. S. *Franklin*. The earlier cases were transferred to hospital, but the ship sailed for the Tropics before all cases had time to develop. By means of the perfect isolation possible in this room, the spread of the disease was prevented, altho the crew presented a fertile field in young men liable to infection. The addition of a well-equipped surgical operating room to the sick quarters of vessels of this size increases the facilities for the proper care of the sick and injured, and affords the opportunity of operating under aseptic conditions.

EXTRACT OF REPORT ON THE U. S. S. WISCONSIN.

By H. G. Beyer, *Medical Inspector, U. S. Navy.*

The weekly records of the sanitary inspections made during the year show that this vessel has at all times been in a most satisfactory state of cleanliness, and that no disease of endemic or epidemic character has prevailed.

Certain defects in the ventilation of the after part of the ship should be corrected. At sea when the ventilators have to be removed and the fans stopt, the cabin and wardroom are practically without ventilation. Such lack of provision for ventilation in a modern battleship, every part of which depends for ventilation on artificial means, is a serious defect and should be speedily remedied.

The quarters for the junior and warrant officers are situated around or close to the engine room, and are so hot that sleeping in them, except in the coldest weather, is out of the question. All the officers assigned to these rooms are obliged to sleep on deck, and are able only on rare occasions to spend any time in them during the day. Sleep on deck tends to catching cold and to lowering physical tone, as it is disturbed by electric lights and unavoidable noises, and lacks the refreshing element especially desirable in tropical climates.

The salt beef available for mess purposes is rather old. While apparently in good condition it has remained so long in the preservative substances that it is tough and indigestible and looks raw and underdone when served. It is therefore both desirable and important that a shorter time limit than has heretofore been customary be placed on all stores taken on board as food. On general principles, preserved meats should be used only in cases of emergency, and fresh meats supplied whenever they can be obtained.

It is a rare occurrence to find a well-trained cook in our Navy, one who understands the principles as well as the practice of cooking. The methods of training ships' cooks in the service are very imperfect and need great improvement. An imperfectly trained head cook is unreliable with regard to the quality of his products, and is unable to give the necessary instruction to his assistants who sooner or later become head cooks themselves. The amount of wasted food material thrown overboard after every meal, while furnishing eloquent testimony in favor of the quantitative sufficiency of our ration, speaks volumes against its qualitative excellence.

Other points under the head of personal hygiene that might be improved are the following: A number of ash hoists are worked several times during the night, make a great noise and disturb the sleep of a large number of men, thus causing the expenditure of valuable energy which might be employed to better purpose. It is needless to say that the men do not mind it. The question is, why not prevent this noise by installing an ash ejector? No expense is too great to provide for both officers and men an undisturbed and refreshing sleep, especially in this climate, if it is desired that their usefulness be preserved and not allowed to deteriorate prematurely.

Our distilled drinking water, while satisfactory from a sanitary viewpoint, always acquires a peculiar taste as soon as the vessel has entered the general anchorage of our ships near Cavite. The bay here is rather shallow and, where several large vessels are anchored near together, some of their offal must necessarily accumulate under them or within the radius of their anchorage. In addition to the human excrement passing from a battle ship daily, large quantities of refuse from kitchen and tables are constantly thrown overboard. Some of this material may be deposited in close proximity to the intakes of the distillers and affect both the odor and the taste of the product. A frequent change of anchorage would therefore suggest itself as advisable while the ships are at Cavite.

Battle ships and monitors will always be the most uncomfortable ships in a climate such as this. With perfect sanitary conditions the constant high temperature and humidity from within and without are bound to cause a steady lowering of the average physical and mental strength and endurance of every human being on board. This generally acknowledged fact makes frequent change of station, especially for battle ships, not only desirable but imperative.

During the passage of this vessel from Hongkong to Cavite, between December 28 and 30, 1905, a series of heat prostrations occurred. Of the 14 cases, 10 were firemen, 2 water tenders, and 2 coal passers. The symptoms varied but slightly in the different cases, and were chiefly those of collapse, with dizziness, headache, and severe cramps in the legs, thighs, arms, forearms, back, and abdomen. In no case was there embarrassment of speech, altho loss of voice was noted in one fireman, who stated that this was his second attack. Two of the cases did not show distinct symptoms of heat prostration until some little time after leaving the fireroom, and one of the two was found unconscious.

These patients were at first rubbed with towels soaked in hot water, with excellent results. Some in whom the cramps were painful and distressing were rubbed with chloroform liniment. Rest, of course, was enjoined upon them, and all were off the list and on duty two days after the arrival of the ship in port.

The direct cause of the outbreak was the heat in the fireroom from what is known as assisted draft. In assisted draft the fireroom is made as tight as possible, the air inlets and the furnace outlets being the only places in open communication with the fireroom. But, unlike what happens during forced draft, when the blowers have their speed increased and the incoming volume of air is very much greater than under ordinary draft, in assisted draft the incoming current remains the same, or may even be reduced.

Several points in connection with the occurrence of this interesting series of heat prostrations seem to be unusual. The temperature in the fireroom was not excessive, and alone could scarcely account for so widespread an effect; the relative humidity of the atmosphere was very high, and the temperature and moisture of the atmosphere suddenly increased the day the prostrations occurred. The afternoon we left Hongkong officers and men wore blue with comfort; the next morning white was ordered because of the sudden climatic change.

In the good general spirit prevailing on board, and the excellent relations existing between officers and men, this ship is remarkable. A due appreciation of the necessity of labor on the one hand and of the value of leisure on the other in the discipline of the ship seems to me to go far in accounting for so fortunate a condition.

EXTRACT OF REPORT ON THE U. S. S. WOLVERINE.

By A. G. GRUNWELL, *Surgeon, U. S. Navy.*

The *Wolverine*, still universally and affectionately known from one end of the Great Lakes to the other as "The old *Michigan*," was built at a time when sanitary science received little attention in ship construction. Consequently, from a modern view point, there are many things lacking in her construction which are considered absolutely essential in maintaining the health and providing for the comfort of the crew of a modern man-of-war.

There are no accomodations provided for the sick, and the sick have to berth with the well. The dispensary is too small to serve any other purpose than as a meeting place for the medical officer and his patients, there being room in it to stow only a limited number of the more frequently used medicines and instruments. As the ship is seldom out of reach of a good hospital on shore, these defects in her construction do not result in serious consequences.

The ship has no artificial ventilation; nevertheless, the *Wolverine*, the oldest iron ship in the Navy, has an enviable record for small sick lists and great content. For this happy state of affairs, several circumstances are responsible. In the first place, owing to the rigors of climate in the region of the lakes, the ship does all her cruising during the summer months, when everything can be kept open and the air allowed to circulate freely in all parts of the ship. Then, the climate of this region is naturally healthful and invigorating; men coming to the ship from the coast frequently gain in health to a remarkable degree.

During the winter the ship is moored to a dock at Erie, Pa., and is housed over. The crew then live on board as on a receiving ship, but the large shed space on the dock adjacent is fully utilized for storerooms, offices, a library for the crew, shops, and a heating plant, so that, owing to the relief thus afforded, the ship is never overcrowded and the air on board is maintained in a fair state of purity. On the dock is located a good-sized dispensary well fitted up and containing one comfortable bunk. Both the ship and the buildings on the dock are heated by steam and are kept comfortable in all weather.

Ventilation on the berth deck of the ship is maintained by keeping a port, forward on the windward side, continuously open, while another in the after part of the berthing space, on the lee side, is kept open as the outtake. The intake port is protected by a screen rigged at a little distance inboard from it, which serves to desseminate the cold air and to prevent it from enveloping the sleeping men.

While the ship is cruising, water is obtained from the lakes, as far as possible from shore. This has been found to be safe and pure enough, but it is questionable whether this method of obtaining water will always remain safe, owing to the tremendous yearly increase of traffic on the lakes, and to the number of steamers constantly running in the same track. When moored to the dock, the ship's water is obtained from the city mains, but this water is boiled before being used for drinking purposes.

The percentage of sick for the year is 1.9, and by far the greatest number of admissions have been for the ordinary injuries incident to ship life.

Very little serious disease has occurred among the crew and no epidemics have appeared. The four cases of typhoid fever, among which there was one death, developed soon after the ship left Chicago, the disease having been contracted in that city.

By far the greatest factor in the maintenance of the good health of the crew is the abundant liberty allowed the men. Having all the liberty they want, the men obtained sufficient outdoor exercise, and live like men in other walks of life. In this connection it would be interesting to state that practically no diseases of a venereal nature have required treatment, and only one man with inguinal adenitis, has been excused from performance of duty on account of such diseases.

The other great trouble maker among sailors, alcohol, has also done very little to disturb the peace or the health of the members of the crew. The men who use it, being able to obtain it practically whenever they choose, have used it with commendable moderation in nearly all cases.

SPECIAL REPORTS.

REPORT ON THE UNITED STATES NAVAL MEDICAL SCHOOL.

By J. C. Wise, *Medical Director, U. S. Navy.*

This report covers a period of twelve months ending June 30, 1906.

The winter term opened as usual on the 1st of October, 1905, and was attended by a class of 21 assistant surgeons, who were all found qualified to receive the certificate of graduation at the close of the term, March 31, 1906. The time, in hours per week, devoted to each subject was as follows: Duties of medical officers, 1; surgery, 2; hygiene, 1; bacteriology, 8.5; zoology (parasitology), 2; mental diseases, 1.5; medicine, 1; ophthalmology, 2; chemistry, 4; pathology, 2.5; drills, 6; debate, 1; unassigned, 6.5. The unassigned time was taken up to some extent by professional men not in the school, but it was largely availed of by the instructors in the various departments for extra lectures and quizzing.

The general plan of instruction was that of past years, with minor changes made as suggested from time to time. Consideration of the large number of subjects which demand the study of the young physician, to fit him even theoretically for the duties he assumes when becoming a medical officer of the Navy, makes it apparent that a term of six months is too limited to accomplish more than fix the attention of the student officers upon the most important work and inculcate the way in which the work is to be pursued. Despite the fact that military medicine has greatly progressed in late years, from the scientfic standpoint, and that members of the service have done much to create the branch known as "colonial medicine," which is in reality medicine considered in its relation to commerce, still the principal object of a school such as this is to fit the entrant into the Medical Corps of the Navy for practical duties on board ship, and the greater will be its success the more constantly this end is kept in view; thus the courses on hygiene, surgery, medicine, pathology, bacteriology, chemistry, and hospital-corps work are based on this conception.

The summer term commenced April 15 and concluded June 15, 1906. The attendance comprised 3 surgeons, 3 passed assistant surgeons, and 6 assistant surgeons. The subjects taught are similar to those of the winter term. The amount of time is much more limited, however, and the object sought is to give more advanced officers an opportunity of becoming familiar with the recent progress in medicine. The valuable lectures on psychiatry delivered by Doctor White, of the Government Hospital for the Insane, were unfortunately interrupted by unavoidable circumstances. Lectures on naval law and dental emergencies were delivered at the winter term as heretofore.

The commissioning of the new naval hospital, immediately adjoining the school, will be of the greatest assistance in practical instruction. The valuable library, consisting of rare works relating to general and naval medicine, has been newly classified and arranged, and is now being cataloged. With the addition of works to bring it to date, it will be of much greater use. A museum of natural history, principally relating to parasitology and pathology, is one of the needs of the school. In so far as this relates to morbid specimens, the want has in a great measure been met by microscopic sections in the bacteriological course.

In conclusion, it is recommended that the plan now in use by the Medical Corps of the Army, which requires a preliminary examination to enter the Army Medical School and an examination at the end of the term to decide the desirability of applicants for the service, be adopted for admission to the Medical School and Medical Corps of the Navy.

The following is a summary of the work done in the chemical laboratory during the period from July 1, 1905, to June 30, 1906:

Total number of analyses, 770. These were divided into the following classes: Urine, 753; milk (cows'), 2; milk (mothers'), 2; stomach contents, 1; water, 10; whisky, 1; insecticide, 1.

The urine came from the following sources: Medical examining board, 387; dispensary, 203; candidates for admission to and promotion in the Medical Corps of the Navy, 81.

REPORT ON THE UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD.

By J. C. Byrnes, *Surgeon, U. S. Navy.*

The total number of sick days for the past year amounted to 7,404 for an average complement of 1,304. As compared with the previous year, this is an increase of 248 in the number of sick days and 185 in the average complement. The daily average of patients for the year was 20.28, no allowance being made for the four summer months, during which the three upper classes of midshipmen were away from the academy. Four deaths occurred.

Classified according to Form K and arranged according to the greatest number of sick days, the following is the résumé for the year:

	Number of cases.	Number of days.
1. General infectious diseases	254	2,374
2. Venereal and genito-urinary diseases	104	1,085
3. Injuries	141	1,070
4. Diseases of digestive apparatus	238	1,008
5. Diseases of cutaneous apparatus	68	440
6. Parasites and parasitic diseases	39	350
7. Diseases of the respiratory apparatus	66	309
8. Diseases of the nervous system	101	282
9. Diseases of the visual apparatus	26	121
10. Diseases of circulatory apparatus	8	106
11. Diseases of motor apparatus	26	105
12. Diseases of auditory apparatus	11	75
13. Diseases of olfactory apparatus	25	57
14. Poisons	7	16
15. Constitutional disorders of nutrition	1	9
16. Extraneous bodies	1	2

Of infectious diseases there were recorded 45 cases of diphtheria, with 727 sick days; 11 cases of typhoid fever, with 667 sick days; 133 cases of grippe, with 473 sick days; 17 cases of vaccinia, with 102 sick days; 10 cases of remittent fever, with 84 sick days; 15 cases of intermittent fever, with 57 sick days; 5 cases of mumps, with 49 sick days; and 1 case of chicken pox, with 4 sick days.

Four deaths occurred: One midshipman, from syncope; 1 sailmaker's mate, from alcoholism; 1 commander, from heart disease; and 1 midshipman, from apoplexy.

During the year 21 cases were invalided to hospitals, 11 from the service, and 13 on leave.

On July 9 the first case of typhoid fever occurred among the midshipmen of the fourth class. There were 11 cases in all. At this time the midshipmen occupied the armory or the southwest wing of Bancroft Hall. The mess hall was located in the east end of the basement of Bancroft Hall. About 5,000 men were working in and about the building. Five latrines for their use were located on the south front and about 50 feet from the building, where flies swarmed to an alarming degree. The condition of these sinks was so disgusting that decent men abandoned their use and sought shelter in the weeds and behind piles of lumber in and around the building when attending to calls of nature. The latrines were used chiefly by Italian and negro laborers; no attempt was made to keep them clean, and their condition can better be imagined than described.

Flies coming from these latrines swarmed in the kitchen and mess hall, crawled on the food before and after it was cooked, and infested the tables. During a storm they took shelter in both these places in great numbers, carrying filth on their legs to be transferred to the food and table service of the midshipmen.

I reported for duty September 1. Two cases of typhoid fever occurred September 2 and 3. The origin of the disease was traced to the latrines, and to the insanitary condition of a portion of the basement of Bancroft Hall and of the grounds surrounding the building. The latrines were removed and closets connected with the sewer installed at a more remote point from the building, the sinks were filled with chloride of lime and fresh earth, the basement and grounds were policed, pools of stagnant water were drained, and the basement of the building and the surrounding grounds were disinfected. The mess hall and kitchen windows and doors were screened and the flies in the building were destroyed. After these precautions no other cases occurred.

During the summer months of 1905 only the members of the new fourth class remained at the academy and occupied quarters in Bancroft Hall; the three upper classes were away on the usual summer cruise. On the 1st of September the vessels making this cruise returned to the academy and the midshipmen on board were granted leave until the beginning of the new term on October 1. Only the fourth class remained at Annapolis and continued their drills and studies. During the month of September there were about 245 of these fourth classmen occupying Bancroft Hall, one room as a rule being assigned to two midshipmen. In addition to the rooms thus occupied many more were used for offices and for various other purposes, but one complete wing of the building was left uninhabited until the return of the upper classmen.

On September 16 a midshipman came to sick quarters complaining of sore throat and he was admitted to the sick list with a diagnosis of tonsilitis. A cover-glass preparation from the tonsils made the next morning showed the diphtheria bacillus in large numbers, and the diagnosis of the case was changed from tonsilitis to diphtheria. During the first night of the patient's stay in the hospital he had occupied a ward with four other midshipmen suffering from trivial complaints. As soon as the nature of the case was discovered, the patient and those exposed to infection were immediately isolated, the ward was closed and all necessary precautions were taken to avoid infection of other parts of the building. Special nurses were detailed for the care of the patients, a supply of antitoxin was obtained, and in addition to liberal dosage of the affected midshipmen, immunizing doses of 500 units each were given to the other exposed midshipmen from whose throats cover-glass preparations all gave positive results. In addition to the antitoxin treatment vigorous local measures were taken to destroy the germs in the throats. The roommate of the patient admitted with the disease was immediately sent for, cultures were taken from his throat, and he was kept under observation and isolated from all other persons until the bacteriological examination was made. The room in Bancroft Hall occupied by the midshipmen first affected was closed and disinfected by formaldehyde gas, as was all the clothing, bedding, and furniture contained in it.

On the 17th another case was admitted, and in this the throat symptoms were even more typical than in the first. Microscopical examination gave a positive result. Isolation and treatment were carried out as with the first case. During the next few days several throat cases were admitted to the hospital. Cultures were taken from all the patients presenting any throat symptoms, and the tubes sent to the Naval Medical School in Washington to be incubated and examined.

The report from this examination showed, in addition to the cases already giving a positive test by the microscope alone, 5 new cases. These were also isolated, and antitoxin and careful local throat treatment were given them. One more case was discovered on the 20th of September, making a total of 10 cases to date which showed the presence of the diphtheria bacillus on bacteriological examination.

Owing perhaps to the promptness with which these cases were detected and treated and to the comparatively slight virulence of the organism, all the cases were extremely mild as regards clinical symptoms of toxæmia, and in many no membrane developed in the throat, only a general reddening and slight enlargement of the tonsils attracting attention to the cases and causing a bacteriological examination to be made.

It can readily be seen that the conditions which confronted the medical department were extremely grave. There were about 245 midshipmen occupying quarters in Bancroft Hall, two as a rule quartered in the same room, and officers, workmen, servants, and visitors were constantly going thru the building. The midshipmen were not only going to class rooms and drills daily, but were allowed to call at officers' houses on certain days, thus coming into more or less intimate contact with the women and children as well as the officers. On the 1st of October the members of the upper class were expected back from leave and were to be quartered in the building with the fourth class. While the laboratory was being prepared for systematic bacteriological examinations of throat cultures and material collected, a thoro inspection of all throats was made at Bancroft Hall and all midshipmen who showed even the slightest evidence of throat affection were immediately sent to sick quarters, where cultures and smear preparations were made from throat scrapings and transmitted to Washington to be examined.

On September 24 and 25 about 70 such cultures were made, and during the following week over 150 were prepared. Out of this number 26 contained no bacilli of diphtheria.

As the hospital was far too small to isolate the midshipmen whose throats contained the germ it was necessary to utilize two temporary frame buildings near the sick quarters, called annexes A and B. On September 27 all midshipmen showing contamination were transferred from the sick quarters to annex A. The sick quarters were then thoroly disinfected with formaldehyde and many of the rooms and corridors repainted.

As it was nearly time for the return of the upper class men, the question of the disinfection of Bancroft Hall before their arrival arose, and, in order to do this, temporary quarters at some remote point from the building had to be arranged for the use of the midshipmen remaining in the building. After much careful consideration it was decided that the U. S. S. *Hartford*, which was at that time alongside the *Santee* dock and practically uninhabited, would furnish the most suitable quarters for the class until the rooms in Bancroft Hall were ready to receive them.

On September 28, in a letter to the superintendent, the following recommendations were made:

1. That Bancroft Hall be completely evacuated by the midshipmen pending thoro disinfection and fumigation of that building.
2. That the midshipmen be allowed to take with them only the clothing absolutely necessary, and leave the remainder in their quarters to be disinfected with the rooms.
3. That the clothing to be taken for immediate use be sterilized before being again used by the midshipmen.
4. That the midshipmen, after leaving Bancroft Hall, be given antiseptic baths, then furnished with an outfit of sterile clothing, and the clothing removed sent to sick quarters for disinfection.
5. That the midshipmen be then quartered on the U. S. S. *Hartford*, and under no condition allowed to return to Bancroft Hall until disinfection of the building be completed and each midshipman proved free from the disease germ.

On September 29 and 30 these recommendations were carried out, and the 1st of October found all the midshipmen on the *Hartford* and Bancroft Hall ready to be disinfected.

Meanwhile the members of the three upper classes had been informed that the opening of the academy would be postponed, and October 14 was set for their return to Annapolis.

At this time three additional medical officers were ordered to the academy for temporary service, thus increasing the medical staff from 5 to 8. The duties of these officers were arranged as follows:

1. The senior surgeon had general supervision over the entire station.
2. The first assistant took charge of all diphtheria patients in annex A, and had no other duty.
3. The second assistant had charge of patients in the hospital and attended officers and families outside.
4. The third assistant had charge of the midshipmen on the *Hartford*, made frequent examinations of their throats, and supervised the disinfection of their clothing and persons.
5. The fourth, fifth, and sixth assistants did all the laboratory and bacteriological work. The seventh assistant held sick call on the *Santee* and at the marine barracks, and after that supervised the disinfection of Bancroft Hall and class rooms, and later, the ships.

On October 1 the disinfection of that part of Bancroft Hall which had been inhabited by midshipmen was begun.

The disinfection was accomplished mainly by formaldehyde. At first, after sealing each room as completely as possible, the formaldehyde was used as a vapor, by distiling a 40 per cent solution of formalin in special generators or by heating solid paraform. These proved to be extremely slow methods, especially as there were in all about 250 rooms to be so treated. It was found that by the employment of a pumping spray machine, which had been used in the building for spraying walls with kalsomine, each room could be filled with a fine vapor of the 40 per cent solution of formalin in a very short time, and therefore this method of disinfection was adopted after the first day. After thoroly spraying each room and its contents in this way and saturating the air with the vapor, the doors were quickly closed and sealed and the room left for twenty-four hours without reopening.

In this way all the rooms were disinfected in four days, whereas by the other methods it would have taken a much longer time.

The corridors, kitchens, closets, and mess rooms which could not be properly sealed were treated by thoroly scrubbing with a solution of bichloride of mercury, after which a solution of bichloride was used as a spray.

This work was done by a force of civilian employees, under the personal supervision of a medical officer, and was completed on October 4.

On several occasions experiments were carried out to test the efficiency of this disinfecting process. Culture tubes and dishes were left exposed in the rooms one night and taken to the laboratory the next day and incubated.

In the majority of all the rooms thus tested the culture material proved sterile at the end of a reasonable incubation. One or two dishes showed a slight growth, but in none could the bacillus of diphtheria be discovered.

After the disinfection was completed the building was turned over to the executive authorities to be given a final cleaning preparatory to the return of the midshipmen.

On October 14 the upper class men returned and were assigned quarters in the building.

In order to prevent a reinfection of the building by the midshipmen then quartered on the *Hartford* the following measures were carried out with success.

On the evening of October 4 and on every other evening until the entire class had presented itself 50 midshipmen from the *Hartford* were sent to sick quarters where cultures were taken from their throats.

These 50 midshipmen, before reporting at sick quarters, took their bedding and personal effects from the *Hartford* to the *Severn*, at that time lying next to the *Hartford* at the *Santee* dock.

After the cultures were taken these midshipmen were sent on board the *Severn* and there remained until the result of the bacteriological examination was made known—usually about noon the next day.

Early in the morning of the next day the midshipmen carried their bedding and clothes from the *Severn* to the disinfecting chamber at sick quarters, where they were all disinfected by steam. At 12 o'clock the midshipmen from whose throats the cultures had proved negative were marched to the gymnasium, their bodies bathed and disinfected, a sterilized suit of clothes furnished them and were then sent to the U. S. S. *Newark*, which was moored about 200 yards off the *Santee* dock. Their disinfected bedding and the remaining articles of clothing were sent them before night. This procedure was carried out daily until all the midshipmen on the *Hartford* had been examined and disinfected. Out of the total number examined 8 were found with the diphtheria bacillus in the throat, and these with all clothing and bedding were immediately sent to annex A, where they received the appropriate treatment.

The disinfection of the bedding and clothing as well as the bodies of the midshipmen was most rigidly carried out under the supervision of a medical officer.

On the 14th of October all the midshipmen from the *Newark*, as well as the upper class men who had returned from leave, were again quartered in Bancroft Hall.

As has been mentioned the building known as annex A was occupied by those having the disease and those who gave evidence of the germ in the throat. These patients were under the personal supervision of a medical officer, special nurses were detailed for duty with them, and everything connected with their treatment and care was carefully kept apart from the hospital proper.

The treatment consisted in the administration of antitoxin and in the employment of antiseptic applications to the throat and nose.

Every three days cultures were taken from the throats of the patients and submitted to bacteriological examination. If the cultures thus taken proved negative, the patient was removed to the lower floor of another building, called annex B, and remained there for three days, when another culture was taken. If this too proved negative, the patient was sent to the upper floor of this building, there to remain another three days, or until the third negative examination showed his throat to be free from the bacillus. After that the patient received the same disinfecting treatment as those on the *Hartford*; his bedding and clothing were sterilized by steam and he was then sent to the *Newark*, and later to Bancroft Hall.

Three successive negative examinations of cultures, at intervals of three days, were decided upon as the best means of insuring freedom from this infecting organism.

Many of the cultures thus examined failed to show the germ after the first three days of treatment; in others it persisted for variable lengths of time, and in a few it remained for several weeks in spite of local antiseptic treatment. One case among those taken with the disease in September gave positive results from cultures until the 19th of October. To those having clinical symptoms as well as bacteriological evidence of the disease antitoxin in doses of 2,000 units were injected, and the dose repeated after several days if the signs indicated a repetition. To those showing laboratory signs only, doses of 500 units were given; 75,000 to 80,000 units of antitoxin were used during the epidemic. The local throat treatment consisted in swabbing several times a day with the Loeffler solution and in using a potassium chloride solution as a mouth wash and gargle. Three medical officers were assigned to duty in this department. Every evening the following procedure was carried out: Fifty midshipmen were marched to sick quarters at 8 p. m., and one by one came to the laboratory, where, under good illumination, the throat was thoroly inspected, a sterile swab brushed over the fauces and tonsils and then rubbed over the blood serum culture medium in a test tube, which was then closed with sterile cotton. The midshipman was then given his culture tube, which he took to another part of the room, where a label with his name and the date and time of the culture was pasted on the tube and the tube placed in a basket, which, when filled, was put in the incubator. In this way there was no chance of getting the tubes mixt in spite of the many and necessarily rapid examinations. The 50 tubes thus prepared were incubated at a temperature of 37 C. for from 12 to 15 hours. At 8 the next morning the examination of these tubes commenced. As there were only two microscopes available, one assistant prepared his cover-glass specimens and examined them, another assistant did staining only, while the third did only microscopic work. In this way all the cultures were thoroly examined by noon of each day, and a report sent to the officer in charge of midshipmen, in order that the bathing and sterilizing process could begin. As regards the method of staining, it was found that Neisser's stain gave the most rapid and sure results, and when rapidity was necessary, as in these cases, this was a most important point. After some practise a cover glass preparation stained with this medium was ready to examine in less than two minutes, and with a 12 to 15 hour culture the results were excellent. Cultures incubated longer than this often failed to stain satisfactorily by Neisser's stain.

When a specimen showed the diphtheria bacillus, other preparations were made from the same culture and stained with Loeffler's alkaline methylene blue and by Gram's method, and the diagnosis confirmed in this way. In specimens containing several varieties of organisms in addition to the Klebs-Loeffler bacilli, the method of Gram gave most beautiful results, and the appearance of the peculiarly grouped, irregular, darkly stained bacilli, was characteristic. This method, as well as Loeffler's and Hunt's, are open to the objection that too much time is needed to stain the preparations. All the specimens giving a negative result with Neisser's were considered free from Klebs-Loeffler bacillus, while all giving a positive or a suspicious result with Neisser were examined by two or more other methods, in order to establish the diagnosis. From September 10 to October 14 about 800 culture tubes were examined in this manner in the laboratory.

In addition to these cases developing among the midshipmen 4 cases of true diphtheria occurred at the marine barracks, which is a considerable distance from the academy. On investigation it was proved that infection must have occurred in town and not at the academy.

The child of an officer was affected and the infection was traced to the visit of a midshipman to the house, the midshipman later developing diphtheria. The child was immediately isolated at her home and the usual routine treatment and precautions were carried out.

One case which developed in an upper classman four days after his return was undoubtedly due to infection before he reached Annapolis for, according to his statement when appearing at sick quarters, his throat had been sore for several days and he presented himself for examination only because of orders to do so. His detention and isolation were immediately carried out and his room sealed and fumigated.

In the report of Medical Director Harmon the following extract shows conclusively the origin of the disease and the manner in which it was introduced into the academy:

"In regard to the origin of this outbreak of diphtheria, there is no evidence whatever that the disease was brought into the academy by the newly appointed midshipmen, as nearly four months had elapsed from the time of their admission to the time of the occurrence of the first case of diphtheria, and those who were first affected had not been outside the walls for more than two weeks.

"Careful inquiry into the health conditions of the city of Annapolis reveals the fact that cases of diphtheria were present in the town from time to time during the summer, and the city health officer reports that there were, on September 16, the same day the first case appeared among the midshipmen, some cases of the disease in Eastport, a suburban village largely inhabited by workmen employed on Bancroft Hall and by mess-hall servants who were in daily contact, more or less close, with the midshipmen in their quarters. The two officers and one private of marines probably contracted the disease in Annapolis, as there had been no communication whatever with the midshipmen.

"An undoubted source of contagion is thus established, as well as a most likely means of conveyance, and it may be safely stated that the infection was brought from Annapolis by the workmen employed in the buildings, or by the mess-hall attendants, and more likely the latter. These servants have always been a serious source of trouble and embarrassment to the Naval Academy. They are negroes from Annapolis, civil employees, who pass daily in and out and sleep in their insalubrious lodgings in the town. They are not under naval discipline, and are, as a rule, the most worthless and irresponsible of their class, ignorant and unwholesome, possessing only the clothes they stand in, and total strangers to a bath. They are even worse at this time than in former years, as the better negroes formerly available are now attracted by the higher wages paid by the contractors on the spot while the building operations are going on and only those rejected by the contractors will accept the mess-hall employment at $10 per month. With the recent great expansion in the number of midshipmen at the academy, 100 of these servants will be required, and as their duties bring them in close contact with the kitchen, mess hall, and dormitories, it becomes an imperative necessity to correct this evil, if possible, and to devise some better solution of the servant problem. The midshipmen are surely entitled to better attendants, and this recent outbreak of diphtheria is a convincing proof that under the present system these objectionable negroes are a grave menace to the health of the academy."

A number of eye cases have occurred during the session, chiefly progressive myopia and ciliary spasm, both usually associated with astigmatism. These affections are, for the most part, natural weaknesses exaggerated by close application to study, particularly by electric light, and mechanical drawing, the latter being much complained of as a cause of eye strain, as such close and constant application is required for the exactness of the drawing.

The electric light is an undoubted factor in causing tired and congested eyes. The midshipmen, as a rule, study facing a table on which the bright and glaring electric light is thrown from the swinging lamps, each of 16 candlepower. The reflection from their books and from the table throws too much light into the eyes, and overstimulated and painful vision is the result. It is suggested that the Cooper-Hewitt mercurial light be installed, which is said to require less voltage and would, therefore, be advantageous also from the standpoint of economy.

It is recommended that the standard of vision be kept at 20/20 for entrance, and if it should fall below 15/20, due to progressive myopia, that the midshipman be rejected at his annual examination.

Normal vision should be the sine qua non of a naval officer, as so much depends upon it in watch standing, navigation, gun pointing, etc.

Each wing in Bancroft Hall in which the midshipmen are quartered is ventilated thru four air shafts symmetrically placed, from which the air is pumped by three 48-inch and one 60-inch electrically driven fans. Openings thru registers are made from the ventilating shafts to the corridors of each floor, so that the fans operate to exhaust the corridors. In the bottom of each door to the midshipmen's rooms is placed a grill, so that the air exhausted from the corridors is supplied in turn from the midshipmen's rooms. There is also a ventilating grill and air duct from the outside of the building to the box base of each radiator, so that, as the air is exhausted from the rooms, fresh air is supplied over the radiators. In addition to this the windows of the midshipmen's rooms are constantly open to a sufficient extent to afford ventilation.

The total cubic contents of each wing of the building is 1,455,000 cubic feet. The fans of one wing when operating at the lowest speed have a combined capacity of about 50,000 cubic feet per minute, so that the actual time required to pump out one wing of the building under these conditions is 29 minutes.

When operating at the highest speed, the fans will pump out one wing in about 18 minutes.

The sewers and drains of Bancroft Hall are installed on the Waring or separate system—i. e., all roof and area drainage of rain water is carried in one system of pipes—not only in the building, but also to the final discharging point, and the sewerage from closets, bath tubs, urinals, sinks, etc., is carried in another system. All fixtures thruout the building are trapt, and have a water seal, and every trap is vented. All pipes, etc., are extra heavy, and the work has been done in a first-class manner. Soil pipes are of cast iron, are extended above the roof and have leaded joints. Running traps, ventilated, are installed outside of the limits of the building before the pipes reach the main sewer. The main sewer at the point of discharge is placed with the bottom at mean low water, which insures a complete emptying of the pipes at least twice a day. Physical conditions prevent placing this main sewer any higher. The water-closets are located alongside the ventilating shafts at diagonally opposite points, two groups on each floor of each wing. The shower baths are in the living quarters. The bath tubs, 12 in each wing, are in the basement. These tubs are little used, as the midshipmen prefer the showers.

It is proposed to drain all low points in the grounds thru a regular drainage system, now partly installed, as the grading is completed and the points needing drains are determined. Road boxes are installed and connected to the main drainage points. This will prevent the accumulation of water in pools at low places.

The water used by the Naval Academy is obtained from the Annapolis Water Company, and enters the grounds at two points, passing thru a Loomis-Manning filter in each case. This is a double cylinder filter, the filtering material being crusht flint in the first cylinder and bone black in the second one. The filters are washt daily. The amount used monthly is about 6,364,200 gallons.

The sanitary condition of the marine barracks is good, only a few conditions demanding notice as in need of remedy.

The space set apart for use as sick quarters is inadequate. There is one large room capable of holding about six bunks comfortably, and attached to this room is a bathroom and water-closet. These two rooms are on the third floor of the building, and the water supply is so defective that the water-closet and bathroom can not be used. In the large room are kept and dispensed all the medical supplies, and in this room are held all sick calls. It is evident that such a condition is not conducive to the comfort of those who may be sick. A separate room is urgently needed for use as a dispensary and as a place for holding sick call, where patients could consult the medical officer in private and without disturbing the sick. It would be better to move the whole sick quarters to the lower floor.

The space set apart for use as a dormitory for student officers is altogether unsuitable. This is only an attic with low ceiling and small dormer windows, and can not be efficiently lighted or ventilated. The windows are opened at night, and these being on a level with the beds give rise to cold drafts, from which have resulted many cases of tonsilitis, bronchitis, etc.

The *Hartford* is in good sanitary condition; the *Santee* is still used for housing the majority of the men.

It is recommended that the marines be no longer quartered on the berth deck of the *Santee*, as the space is damp and poorly ventilated. The use of the *Santee's* brig should be discontinued for the same reason.

REPORT ON THE UNITED STATES MARINE BARRACKS, WASHINGTON, D. C.

By W. A. McClurg, *Medical Inspector, U. S. Navy.*

During the year 1905 the inadequate and insanitary buildings in use at this post were almost entirely replaced by a modern building, constructed of brick and American Portland cement, with steel frames, slate roof, and sanitary plumbing. The new building comprises a basement, two stories, a tower dormitory in the center, and an additional half-storied storeroom over each wing, which can be utilized temporarily as a dormitory, save in warm weather. The occupied building can, in this climate, comfortably accommodate 250 men; when the new southern building now under construction is completed 300 to 325 men can be housed, not ncluding the Marine Band, the personnel of which resides outside the post. This change has long been needed, as the replaced buildings dated from 1803 and had not been occupied for many years. Upon the completion of the buildings under construction, all the old buildings on the Eight street side of the quadrangle will be torn down and the parade ground extended to the street, adding to the healthfulness and attractiveness of the post. This change will involve the demolishing of the center house, long used as quarters for officers, which could only be made fit for use by a large expenditure almost equalling that necessary to secure the erection in the immediate neighborhood of modern and adequate quarters for the officers attached to the post.

The construction of the new barracks, now occupied, is excellent; they are practically fireproof and are easily kept clean and in excellent sanitary condition. With the exception of the water-closets, which have adequate ventilating shafts, the ventilation is natural, thru the medium of numerous windows located on both sides of the building. On the first floor the windows are 85 inches high and 44 inches wide; on the second floor, 76 inches high and 38 inches wide, and in the middle tower, 54 inches high and 49 inches wide. In addition there are intercommunicating doors which admit of a free circulation of air.

The steam-heating apparatus has proved to be entirely satisfactory and leaves nothing to be desired. It comprises a steam supply to direct and indirect radiators, with a return of the condensation of the same by gravity to the boilers. Indirect radiators will heat the new band room and dormitories, and the band room will have a fan and motor for the discharge of the foul air from the bath and toilet rooms.

The water supply is derived from the city mains in unlimited quantity. Altho already filtered, it is again filtered thru the medium of a Loomis & Manning filter with a capacity of 300 gallons a minute.

The well-lighted kitchen, 60 feet long by 22 feet wide and 13 feet high, with a modern range, dishwasher, and appliances, is admirable. It is separated by an adequate serving room from the mess hall, 126 feet long by 22 feet wide, and on the other side it is flanked by a hall, a large storeroom, and an ample refrigerating room. The kitchen, mess hall, etc., are faced for a height of 5 feet 6 inches above the floor with a dark yellow glazed brick, bonded, and this facing extends to the underside of the counter in the serving room. In the basement a large brick bake oven 7 feet high is located, which has a capacity of 100 loaves of bread an hour.

The lavatories, with 31 bowls, soap cups, and heavy cast brass bayonet-pattern waste plugs, are located on the first and second floors. They are very accessible, have an unlimited supply of hot and cold water, are faced with dark-yellow glazed brick to a height of 5 or 6 feet, and have tiled floors.

The bathrooms, 3 in number, are located on the second floor, are fitted with 5 porcelain-lined tubs and 15 showers, with antiscalding valves, and have an unlimited supply of hot and cold water. The floors and walls of the bathrooms are tiled. The showers are separated by heavy opaque glass partitions, 1 inch in thickness, set with white lead and shellac in heavy iron frames to prevent the collection of dirt.

There are 4 water-closets, 1 on the first floor and 3 on the second, with a seating capacity of 20. There are 5 sets of solid porcelain urinals, 1 set being on the first floor, with an automatic water supply, which assures flushing of the troughs every few minutes. The materials used in roughing the sewer pipes, soil lines, and vent lines are of the best quality extra heavy cast-iron piping. The back-air and water pipes are of heavy galvanized wrought iron, with heavy galvanized beaded fittings. The galvanized waste pipes have in all cases a fall of one-fourth of an inch to the foot and heavy drainage fittings. After all was completed the whole plumbing system was filled with water and every pipe was found to be tight; subsequently a successful peppermint test was made. There are 2 connections with the city sewers of 8-inch glazed terra-cotta pipes, and all soil pipes, vents, and down spouts are of extra heavy cast-iron soil piping, and run in the most exposed and direct manner.

The completed dormitories are located in the second story, and are 7 in number, with a total air space of 120,986 cubic feet, giving to each cot 448 cubic feet and a floor space of 40 square feet, and a total of 84 windows, 76 inches high by 38 inches wide. Twenty-five extra cots could be utilized in the storeroom during cold weather. Ten rooms are located on the second floor; each has 1 window, 76 inches high by 38 inches wide, an air space of 1,300 cubic feet and a floor space of 130 square feet, and will be occupied by one noncommissioned officer. The offices are spacious and well lighted by natural light and electricity.

The sick quarters are located in two large rooms in an old building soon to be demolished. The new sick quarters in the southern building will be occupied by October, 1906, and will comprise an office for the medical officer, which will have an air space of 2,210 cubic feet. A room of the same dimensions will be available for an examining room. A ward, within which will be inclosed a bathroom and water closet, containing a porcelain-lined bath tub supplied with cold and hot water and two water-closet seats, will have an air space of 4,840 cubic feet, giving to each of the three cots 1,613 cubic feet, and a floor space of 161 square feet.

The brig is at present situated in one of the old buildings soon to be demolished, and tho undesirable, is well kept and as clean as the circumstances permit. The brig will be located on the first floor of the new southern building, and will be well lighted by windows and electricity, amply heated and provided with a shower bath, porcelain-lined tub, and water-closet; the air space will be 7,200 cubic feet, and the floor space 688 square feet. The adjoining guard room of the same dimensions will be well lighted, heated, and provided with wash basins and a water-closet. A gymnasium and a large recreation room will also be provided in the new building.

REPORT ON THE U. S. S. SOUTHERY.

By H. SHAW, *Assistant Surgeon, U. S. Navy.*

The health of the men during the past year has been exceptionally good, due to the salubrity of the climate, the cleanliness of the men and ship, and the out-of-door life and exercise enjoined upon all prisoners. The two compartments for prisoners are situated one forward and the other aft on the berth deck. The former measures 53½ feet in length, 38 feet in width, and 7½ feet from deck to deck, and can conveniently accommodate about 100 men; the latter, 84 feet long, 36 feet wide, and 11 feet from deck to deck, can accommodate about twice that number. During the year the number of prisoners increased from 172 to 352, and it is considered that the limit of safety has been reached, as in the after compartment the men are so crowded that here and there the hammocks are hung in three tiers. The ventilation is by means of ports and hatchways only, and the air at times becomes foul, the poor ventilation being indicated by the comparatively large number of tonsilitis cases that have recently occurred. Fortunately the winter so far has been very mild; otherwise much more sickness might have been expected from the crowding of the prisoners, the poor ventilation, and the exposure to which all are subjected at sick-call and on pay days, when the men are compelled to wait on the exposed deck in all kinds of weather.

As there are at times almost 500 men on board, including prisoners, marine guard, and ship's complement, the sick bay is much too small. It contains 4 cots, measures 26 feet long by 6 wide and 7 feet high, and is ventilated by windows necessarily close to the patients in the cots and a source of danger whenever opened. The dispensary is in proportion to the size of the sick bay, and contains 135 cubic feet of air space.

It has been the custom in the past to send all patients to the naval hospital at Portsmouth, N. H., as it is conveniently near. Inasmuch, however, as considerable difficulty has been experienced in preventing patients sent there for treatment from escaping, the commanding officer of the *Southery* is naturally loth to send men to the hospital. The wash rooms, closets, and urinals are in excellent condition, and are at all times kept in a state of scrupulous cleanliness.

If the ship is to be kept in commission as a prison-ship, it will serve its purpose much better if the spar-deck is housed in, artificial ventilation installed, the galley enlarged, and a sick bay and dispensary constructed adequate for the treatment of the sick during the winter weather.

NOTES FROM A REPORT ON SANITARY AND MEDICAL CONDITIONS, U. S. NAVAL STATION, GUAM, L. I.

By E. R. STITT, *Surgeon, U. S. Navy.*

Rhino-pharyngitis mutilans—Gangosa.—In a study of 46 cases of this disease only 4 showed active manifestations, the lesions in the other cases, after causing more or less destruction of tissue, having apparently healed. For several months there had been no case in Guam of incipient gangosa with its primary membranous patch and fulminating ulceration, so that what might be the most favorable material for discovering the cause was not available. Surgeon Bagg, U. S. Navy, is convinced of the invariable connection between the primary manifestations and the later destructive lesions which mutilate and disfigure, and is hopeful that the early application of iodine may be a measure capable of arresting the process, as in two cases so treated the condition did not materially advance beyond the primary membrane formation. It is apparently conceded at present that after perforation and infection of the nasal cavities occur all treatment is only palliative.

In the majority of cases examined the process seemed entirely healed and the perforations and ulcerations were limited by firm cicatricial tissue, scrapings from which showed practically the absence of every type of organism. The history of such cases is that after a variable period of quiescence an active ulcerative process sets in again. Some cases in which the eye sockets show simply a cicatricial area greatly resemble leprosy with ocular involvement.

In gangosa, however, ocular involvement always takes place by extension thru the lachrimal ducts and never originates from some external area about the nose or lip.

The frequent involvement of the nasal duct is rather a strong point against the syphilitic nature of gangosa.

In the study of gangosa it is confusing to find a case in which leprosy coexists. Such cases are not infrequent. It is by the succession of events and the almost invariable presence of oval perforations with firm elastic margins in the hard palate, rather than by the bacteriological finding of the leprosy bacillus, that the ulceration of gangosa can be differentiated from that of leprosy.

Before making preparations from the gangosa ulcerations it was thought advisable to examine into the matter of the accidental contamination of ulcerating leprosy areas. Some of these preparations were stained with carbol fuchsin and decolorized in 5 per cent sulfuric acid; others with Giema's modified Romanowsky stain. While the leprosy bacillus was not discovered in several of the smears, yet these cases were clinically leprosy, and it was not doubted that certain areas could be found which would show the organism of leprosy. Two cases afforded very beautiful specimens of yeast infection and the smear in one case showed in the greatest abundance a fungus resembling oidium. These were undoubtedly accidental infections of the superficial ulcerating areas, as all three cases were lepers.

The contaminating organisms which might be expected, having been determined in this way, preparations from scrapings about the active ulcerating areas of gangosa were made. These were first rendered anesthetic with cocaine, then sponged with alcohol, and afterwards scraped with a sharp knife. In addition one portion of the uvula was excised and sections were cut from the tissue removed. These preparations were stained chiefly with Giema's stain and with Gram's method of staining. In none of them was any indication found of a fungus or yeast, and the bacterial flora was inconstant. Two specimens, however, in which there was considerable blood, showed very striking areas in which all the elements were degenerated and numbers of a leptothrix-like organism were present. Further study of these specimens may determine more positively the nature of these filaments. Nothing in the nature of a spirochaeta was discovered.

The sections of the tissue showed a packing with small lymphocytes and a great number of mast cells with free granules staining similarly to mast cell granules.

The blood of about 10 cases showed nothing abnormal except an invariable eosinophilia of from 10 to 20 per cent, but this is normal in these people, owing to their almost constant infection with intestinal parasites.

Leaving for the present the question of etiology and clinical manifestations, the question of degree of infectiousness should be considered. It has generally been assumed that the white race is practically immune to gangosa and consequently that our interest in the disease is altruistic. Long-continued observation of a case of hard-palate perforation and septum destruction in a marine private who was undergoing treatment at the United States Naval Hospital, Canacao, gave convincing proof that this view is incorrect. The man in question was in Guam for an extended period of service, and while there associated intimately with the natives and very probably, from evidence obtained, with gangosa families. From the study of a large number of cases of gangosa, it is believed beyond question that this infection was one of gangosa instead of syphilis. The patient had syphilis also, but that was merely a coincidence.

The evidence in Agana is very strong that the disease runs thru families, 8 members of one family having been attacked. In the colony at Ypao there is an entire family of 6 with the infection. Furthermore, instances are given of the appearance of the disease in families previously well after residence in a house which had formerly been occupied by gangosas.

The Spanish divided persons presenting various mutilating lesions into three classes:

1. The llagosos, or those presenting ulcerative or deforming lesions about the lower extremities. From what can be ascertained, some of these were cases of severe tropical ulcers and others were lepers.
2. The gangosos.
3. The leprosos.

The documents as to the numbers afflicted at different times and the various reports as to characteristics of these diseases were destroyed shortly after the American occupation, so that there are at present absolutely no records on the subject. It is possible such important papers as the report of the Spanish commission in 1828 may be a matter of record in Manila or Madrid.

To present briefly the question of the gangosa problem, we have the following considerations:

1. Gangosa is a disease which results in the most frightful mutilation unless it can possibly be checked by measures taken in its incipiency.
2. It is considered by all to be a disease which is contagious, affecting in many instances a large proportion of a family and in authentic cases those occupying a house previously occupied by gangosas. It is believed to be less infectious than tuberculosis but more so than leprosy.
3. In one undoubted instance it has attacked a white man.
4. The liability of the disease to sudden recurrences after a period of quiescence makes it peculiarly dangerous.
5. The experience of the Spanish indicates that by methods of segregation the spread of the disease can be controlled.

The statements of Captain Duarte, at present chief justice of Guam and formerly a captain in the Spanish army, show that at the time of American occupation there were only about 40 cases in the island, and the fact that there are now at least 200 cases indicates that the extent of the infection greatly increased during the eight years of American occupation when no system of insolation was in effect.

NOTES FROM A REPORT ON THE AMERICAN LEGATION GUARD, PEKING, CHINA.

By JAMES S. TAYLOR, *Passed Assistant Surgeon, U. S. Navy.*

The American legation guard, Peking, consists of one captain, commanding, a first and a second lieutenant of marines, a passed assistant surgeon, and 102 men, including a hospital steward and an apprentice, first class. This guard relieved a company, 150 strong, of the Ninth U. S. Infantry, on September 12, 1905.

The legation guard buildings occupy a rectangular spot approximating 465 by 330 feet in the legation grounds. The men live in long dormitories furnished with beds, chairs, lockers, gun racks, and a few tables. They are high-pitched and cool in summer. The stone floors are a source of discomfort in winter. Laying wooden flooring and putting up storm doors in winter would add greatly to the comfort of the men. The water-closet is located within 10 feet of the kitchen, and owing to the swarms of flies is a constant menace to health. The men's bath house, containing seven bath tubs and seven shower baths, is a most satisfactory feature of the equipment of the post.

The sick bay, known in Peking as the American Hospital, is a very commodious eight-room building, two stories high. The rooms are lighted by two or more windows each and have high ceilings. A two-story veranda on the south side of the building is inclosed with glass in winter. On the ground floor are the pharmacy, laboratory, dressing room, linen closet, and a ward with three beds. Above are two rooms with three beds each for patients, the room for the hospital force, and an operating room. In the rear of the building are a small kitchen and mess room. Besides the officers and men of the guard, the personnel of the legation, with servants, visiting friends, and Americans passing thru Peking, are dependent upon the medical department of the guard for medical and surgical aid.

Since their arrival in Peking the men have enjoyed good health and no cases of infectious nor contagious diseases have developed among them except those of venereal origin.

EXTRACTS FROM A REPORT ON THE MEETING OF THE INTERNATIONAL CONGRESS ON TUBERCULOSIS, IN PARIS, FRANCE, OCTOBER, 1905.

By H. G. BEYER, *Medical Inspector, U. S. Navy.*

Especial attention was devoted to the fourth section, which concerned the preservation and assistance of adults.

It would be impossible to report in detail on the immense amount of work done in this section, or even on a single paper and its discussions, and consequently a few subjects have been selected which apply more or less directly to tuberculosis work to be done in the service, and which may be regarded as of special value to us. One of these subjects has reference to the classification of cases of tuberculosis.

For statistical purposes an accurate classification of all cases of tuberculosis is very naturally of fundamental importance.

According to Professor Fränkel, of Berlin, the commission of the International Central Bureau for the Prevention of Consumption, at a meeting last July at Frankfort-on-the-Main, unanimously adopted the following scheme for the mortality statistics:

A. Pulmonary tuberculosis (including tuberculosis of the pleural membranes and of the larynx).

B. Tuberculosis in which organs other than the lungs are chiefly affected.
    1. Tuberculosis of the brain and its membranes.
    2. Tuberculosis of the digestive organs, including tuberculous peritonitis.
    3. Tuberculosis of the urinary organs.
    4. Tuberculosis of the sexual organs.
    5. Bony and articular tuberculosis.
    6. Glandular tuberculosis, scrofula.
    7. Tuberculosis of the skin, lupus.

The sexes are to be kept separate and only cases of death which have been medically certified are to be included in the drawing up of statistics. Moreover, at the recommendation of the Brazil Tuberculosis Society, the resolution was adopted that in countries inhabited by various races the statistics for each race must be given separately.

With reference to the classification according to age the adoption of the following two scales is recommended:

I. Less than one year; from 1 to 4 years; from 5 to 9 years; from 10 to 14 years; from 15 to 19 years; from 20 to 24 years; from 25 to 29 years; from 30 to 39 years; from 40 to 49 years; from 50 to 59 years; from 60 years upward.

II. Less than one year; from 1 to 14 years; from 15 to 29 years; from 30 to 59 years; over 60 years.

The adoption of such a scheme as the above for the *mortality* statistics seems easy and natural and no difficulty is experienced in making it general. It is, however, different as regards the *morbidity* statistics. That question, according to the proposal of Doctor Schmid, is not yet ready for a final settlement and was left open.

The inner council, on May 22 at Copenhagen, accepted without discussion a scheme for the comparative statistics of tuberculosis of the lungs. This scheme is the one introduced by Turban for the various stages of tuberculosis of the lungs and is as follows:

I. Slight lesion, extending at most to the volume of one lobe or of two half lobes.

II. Slight lesion, extending farther than one but at most to the volume of two lobes, or severe lesion extending at most to the volume of one lobe.

III. All lesions which in extent of the parts affected exceed II.

By *slight lesion* is understood disseminated centers of disease manifesting themselves physically by slight dullness, by heavy, weak, vesicular, broncho-vesicular or vesiculo-bronchial breathing and by slight or medium rhonchi.

By *severe lesion* is meant one showing compact infiltration, characterized by severe dulness, by tympanitic sound, by much weakened or irregular broncho-vesiculars, or bronchial or amphoric breathing, by medium and coarse nonvibratory and vibratory rhonchi.

Very slight changes in the respiratory sound without percussional alterations and without rhonchi are not to be taken into account.

Deviating from this stage, classification by Turban, the Imperial German Office at Berlin makes use of counting cards that show the following tabulated stages:

Stages of Tuberculosis of the Lungs:
R (right). L (left).

I. Slight, limited to small parts only of one lobe, especially at the points of the lungs, the disease not extending beyond the edges of the collar and shoulder bones or without vibratory rhonchi.

II. Extending beyond the limit prescribed for I but not reaching the tuberculous lung described in III.

III. Thickening of one entire or more than one entire lobe or signs of formation of cavities.

The Imperial Health Office, by means of these counting cards, has published very valuable statistics from eight large sanatoriums and is about to turn to account 15,000 similar ones. On this account the classification of the stages by this office has assumed great importance. There are, besides, other important points which would make this classification preferable to that of Turban. A new commission will probably be appointed to settle this important subject in the near future. Until this is done either one of these classifications may be adopted, since the modifiations effected in the future will at all events be slight and not affect their value or usefulness.

Another paper of importance to us, was the one read by C. Auffret, surgeon-general of the French navy, on the cause and prevention of tuberculosis in the navy.

General Auffret asks whether tuberculosis originates on board ship or whether it is to be regarded as imported. If ever it does originate on board the ships of a fleet, among an otherwise sound and vigorous crew, it can only be due to faulty hygiene; if, on the other hand, it is imported, it must be due to faulty recruiting. Auffret gives figures that appear to show that most of the tuberculous subjects in the navy of France had the disease at the time of their entry into the service and that by far the greater majority of such entries come from the northern province, notably the province of Brittany.

While he admits that bad hygiene, alcohol, and exposures to influences giving rise to bronchitis and coughs predispose to tuberculous disease, the bacillus of tuberculosis itself is imported on board, the same as are the rats, the fleas, and other vermin that infest our ships.

His conclusions are obvious. While every ship should be constructed and managed in accordance with the best principles of sanitation and hygiene, the chief source of tuberculosis in the navy is the recruit affected with the disease. Reforms in this respect to be radical must therefore begin by excluding diseased recruits, and the work of diminishing the number of diseased recruits must be done on shore, and especially in those provinces from which nearly two-thirds of the men in the French navy are derived, namely those of the north of France.

So far as concerns the hygiene on board their ships, the following and more recent improvements in the French service have been realized:

1. The compartments are to be whitewashed at stated intervals.
2. Dry sweeping is done away with and damp wiping substituted.
3. The swabs are regularly disinfected.
4. The linoleum is rubbed with petroleum.
5. Places in which infected men have lodged are disinfected.
6. The hammocks are boiled in lye.
7. The bags of a diseased man are disinfected before being sold.
8. Patients once sent home are not allowed to return.
9. All the belongings of a musician with tuberculosis, especially his instrument, are disinfected.
10. Men are not allowed to use the same drinking cups nor eat from the same plates.
11. The use of spittoons is made compulsory.

Perhaps the most remarkable among the efforts of the French against tuberculosis are those that are directed against the disease in early childhood by erecting marine sanatoria. The French were among the first to recognize the fact that to combat and prevent tuberculosis in the adult we must begin by treating the child. There exist to-day in France fifteen sanatoria on different parts of the coast for the exclusive treatment of debilitated children. Their success has been so encouraging that the number of these marine sanatoria is to be increased to fifty. Fifty-nine per cent of the children were cured and 25 per cent improved.

The following is an abstract of the closing address of Professor von Behring, containing the essential facts of his discovery:

"In the course of the last two years I have succeeded in recognizing with certainty the existence of a curative principle completely different from the antitoxic principle which I described fifteen years ago. This new curative principle plays the active part in the immunizing action of my bovo-vaccine, which for the past four years has proved successful in the struggle against bovine tuberculosis. This principle I have designated TC. The successful treatment depends upon the impregnation by this principle of the living cells of the organism. When this principle has become an integral part of the cells of the organism I designate it by the formula TX. In the bacillus the TX or TC preexists as an agent endowed with a number of extraordinary properties. It fulfills the function of a formative substance; it also possesses fermentative and catalytic qualities; it has a selective action with regard to other substances, a phenomenon which has been termed atsorption; under certain conditions it possesses assimilative qualities. In a word, it represents the vital principle of the bacillus without its poisonous properties. In my opinion, in the process of immunizing bovine animals against tuberculosis, the TC of the bacilli is freed from other substances.

"The presence of the TC is the cause, on the one hand, of the hypersensibility produced by Koch's tuberculin and, on the other, of the protective reaction against tuberculosis.

"Condensing into a few words the results of my work I may say that in order to free the TC from the substances which hinder its therapeutic action it is necessary to distinguish three groups of bacillary substances.

"1. A substance, soluble only in pure water, possessing a formative and catalytic action; from this substance are derived the toxic elements of Koch's tuberculin. I call this substance TV. To convey an idea of the toxic power of this TV it is only necessary to mention that 1 gram of it in a dry state is more powerful than 1 liter of Koch's tuberculin.

"2. A globulin, soluble only in a neutral salt, for example a 10 per cent solution of NaCl. This substance, which I call TCL, is also toxic after the manner of Koch's tuberculin.

"3. Several nontoxic substances that are soluble only in alcohol, ether, chloroform, etc.

"After the tubercle bacillus has been freed from these three groups of substances what remains is called the 'rest bacillus.' This rest bacillus still possesses the form and staining reactions of the ordinary bacillus. By means of suitable preparation it can be so modified as to become converted into an amorphous substance, directly absorbable by the lymphoid cells. The amorphous substance is elaborated and metamorphosed by the lymph cells of the different animals, and these cells become oxyphile and eosinophile. The condition of immunity develops simultaneously with the metamorphoses these cells undergo under the influence of TC. A fundamental fact is that the TC, altho it can not be reproduced, possesses the power of giving origin to tubercle. The tubercules thus produced do not undergo caseation and never soften.

"By means of experiments on animals I have been able to satisfy myself that the TC, which preexists in the tubercle bacilli, can be elaborated in vitro in such a manner as to be applicable without danger to the treatment of tuberculosis in man."

REPORT ON THE SECOND GENERAL INTERNATIONAL SANITARY CONVENTION OF THE AMERICAN REPUBLICS, WASHINGTON, D. C., OCTOBER, 1905.

By J. D. GATEWOOD, *Surgeon, U. S. Navy.*

Chile, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Peru, the United States, Uruguay, and Venezuela were represented by 20 delegates, of whom 7 were from the United States, 2 each from Cuba and Ecuador, and 1 each from the other countries enumerated.

It appears that the convention was created by resolutions relating to international sanitary policy and sanitary conventions adopted by the Second International Conference of the American States, held in the city of Mexico, October 22, 1901, to January 22, 1902, and had its first meeting at Washington, D. C., in December, 1902.

In accordance with the resolutions creating it, that convention elected an executive board to be known as the "International Sanitary Bureau," with permanent headquarters at Washington.

The members of the International Sanitary Bureau hold office until the next convention, and its primary function is to lend its aid and experience toward the widest possible protection of the public health of each of the Republics represented in the convention and to facilitate commerce between them. With this end in view the Republics agree to transmit promptly to the bureau all data of every character relative to the sanitary condition of their ports and territories and to furnish the bureau every opportunity and aid for a thoro and careful study and investigation of any outbreaks of pestilential diseases which may occur within the territory of any of them. The office expenses of the bureau are paid from a special fund made by annual appropriations of the Republics concerned.

In the resolutions creating the convention it was specified that authority should be conferred by each Government upon its delegates to enable them to join delegates from the other Republics in the conclusion of such sanitary agreements and regulations as in the judgment of the convention would be in the best interests of all the Republics represented. On October 10, the second day of the meeting, Dr. Eduardo Licéaga, president of the superior council of health of Mexico, pointed out that the First International Sanitary Convention (Washington, 1902) had not concluded such agreements and regulations, stated that it was the plain duty of the present convention to construct and sign such agreements and regulations in the form of a *convention ad referendum*, and suggested that a satisfactory result could be obtained by adapting the sanitary convention of Paris (December 3, 1903) to the needs of the American Republics which required not only regulations relating to plague and cholera but also to yellow fever. The convention adopted this suggestion, and the sanitary convention of Paris (1903) was referred to the advisory council, of which the naval delegate was a member, with instructions to adapt it to the needs of the American Republics and to report the result in the form of a convention relating to plague, cholera, and yellow fever to be considered for final agreement and the signatures of all the delegates. The making and signing of that convention was the principal work of the Second General International Sanitary Convention of the American Republics. It contains 50 articles, each of which was adopted unanimously, and as it will probably in time receive the approval of all the countries interested it should ultimately become the international quarantine laws of all the American Republics. It may be of interest to note that in Article XX a ship is considered *indemne* which, altho coming from an infected port, has had neither death nor plague nor cholera nor yellow fever on board, either before departure or during the voyage, or at the time of arrival, and which in the case of yellow fever has not lain in such proximity to the shore as to render it liable, in the opinion of the sanitary authorities, to the access of mosquitoes; and that in Article XXIX it is prescribed that the sanitary authorities of such countries, where it may be convenient to make such regulations, may dispense with the medical visit and other measures toward *indemne* ships which have on board a physician specially commissioned by their country.

Dr. L. O. Howard, chief of the Bureau of Entomology, read a very interesting paper on the geographic distribution of the yellow-fever mosquito and some other points connected with that insect. It appears that the *Stegomyia fasciata* may be stated roughly to range from 38° south latitude to 38° north latitude, and that the limitation of the regions in which, if accidentally introduced, it may reasonably be expected to propagate and to become perfectly established is marked by the isotherm showing a sum of normal positive temperatures of 10,000° C. The sum of normal positive temperatures means the sum of normal mean daily temperatures above 6° C. If this sum for the year reaches 10,000° C. it is safe to say that the locality is within the limits of the lower austral life zone and that the yellow-fever mosquito, being a tropical and lower austral species, will breed there if the climate is not too dry, or rather if the conditions surrounding human habitations permit. Doctor Howard added considerably to the list of places declared in his pamphlet (Vol. XVIII, No. 46), of the Public Health Reports, revised to September 10, 1905, to represent the present known distribution of the species. The additional places were recently reported by assistants who had visited certain points in Mexico, Guatemala, Costa Rica, Salvador, Nicaragua, Santo Domingo, and the British and French West Indies, from which reports had not been previously received. The species was found at San Jose, Costa Rica, a city which has an elevation of about 3,000 feet, where there is no history of yellow fever. He considered it not unlikely that San Jose is an example of the extralimital regions to which the yellow-fever mosquito is carried during the summer time on railroads or by steamboats and where it breeds for one or more generations before the close of the season. In those regions the species may be found late in the summer.

It appears that the yellow-fever mosquito is common at Sanchez and Porto Plata, but strangely scarce in Santo Domingo City, tho common in St. Cristobel, 2,000 feet elevation, 20 miles inland. Doctor Howard stated that the adult yellow-fever mosquito was found in numbers in several churches in different West Indian islands, the *Stegomyia* breeding abundantly in the holy-water font. The *Stegomyia fasciata* is a house mosquito. It is never found in the bush, and rarely breeds in other than clear water. It is a domestic species, showing by its hiding habits a long familiarity with man. It has a habit of concealing itself in garments, working into pockets and under coat collars, and of crawling up under the clothes to bite the legs rather than the exposed ankles. It seems to bite more frequently in the afternoon, and there is reason to believe that it may bite even when less than 1 day old. Doctor Howard stated that reports showed that impregnation of the mosquito was not necessary before it would bite, and that it would bite a second time after the lapse of 48 hours. He stated that his assistant, Mr. A. Busck, had reported that at L'Abrea, Trinidad, there is a pier about 400 feet in length, built by the asphalt company. The superintendent of the company erected his house near the end of the pier in order to be free from mosquitoes. The experiment was successful until another official, seeking the same result, built his house in the middle of the pier. This apparently afforded a suitable interval for the *Stegomyia* to travel from the shore to the nearer habitation and then to the other, and both houses became infested.

The reports and discussions concerning the yellow-fever mosquito showed a uniformity of belief that sufficient was known in that connection to warrant the opinion that measures for the prevention of yellow fever could now be taken with precision.

There was some discussion of a recent report that two members of the Pasteur Institute investigating yellow fever in Rio de Janeiro had declared that infected *Stegomyia fasciata* were capable of having infected offspring, and that during their observations a mild case of yellow fever had followed the bite of a mosquito bred from the egg of a parent infected twelve days before it was laid.

Doctor Guiteras and Dr. James Carroll, U. S. Army, stated that observations in Habana had not at all corroborated the idea that infected mosquitoes laid infected eggs.

Dr. C. W. Stiles, Public Health and Marine-Hospital Service, said that the French announcement should be received with an open mind and not summarily dismissed because of the large number of negative results in Cuba.

REPORT ON MEETING OF AMERICAN PUBLIC HEALTH ASSOCIATION, BOSTON SEPTEMBER, 1905.

(*Notes.*)

By Dwight Dickinson, *Medical Director, U. S. Navy.*

Clark and Gage on "The use of copper sulfate in water filtration:"

"To a sand filter which had been in operation without the addition of chemicals for nearly eleven years at the Lawrence Experiment Station, copper sulfate was added and the filter operated for a period of twelve months afterwards. During short periods samples of the affluent and effluent water were examined almost daily for bacteria. Figures covering the results of these examinations a year before and a year after the addition of the copper showed that the efficiency of the filter was not increased by the use of copper sulfate.

"Speaking of the longevity of the Bacillus typhosus in surface waters and sewage, H. L. Russell and C. T. Fuller, of Madison, Wis., said, in a joint paper, that it can retain its vitality for about eight days in relatively pure waters of a surface character. Experiments under sufficiently diverse conditions warrant the belief that the typhoid organism in sewage does not live as long as in relatively pure water.

"Dr. W. F. Elgin noted some results of experiments with vaccine virus. In winter virus may be expected to remain active 125 days. This period shortens as the weather gets warmer; a temperature above 70 degrees hastens the destruction of the virus, so that summer vaccine can be expected to remain active only for a short time. Up to the present no sure method has been universally accepted which will secure purity and potency in virus prepared for general distribution."

REPORT ON THE TREATMENT OF AMŒBIC DYSENTERY IN CANACAO HOSPITAL.

By A. B. CLIFFORD, *Assistant Surgeon, U. S. Navy.*

After thoro trial of high irrigations with solutions of quinine, treatment with ipecac was found more satisfactory. It was given in the following manner:

The patient was kept quietly in bed on his back. At 7 a. m., on an empty stomach, he took 20 minims of tincture of opium; at 7.30 a. m. 30 grains powdered ipecac were given in capsules. No food was allowed for at least four hours. Iced cloths were applied to the neck and a hot-water bag to the feet. With these precautions nausea was reduced to a minimum and the ipecac retained without difficulty.

This treatment was repeated on three or four successive days. If there were tenesmus and pain in the rectum they were relieved by a small enema of starch water and laudanum.

As soon as the active symptoms subsided the patient got out of bed, if he was able, and the diet was gradually increased. During about two weeks following a powder was given three times a day, containing: Ipecac, one-half grain; calomel, one-tenth grain; tincture nux vomica, 2 minims.

In milder cases with fewer stools magnesium sulfate was frequently given as a preliminary to treatment. This not only furnished more material for diagnosis, but, by cleaning out the intestinal tract, made the condition favorable for the action of the ipecac. Salts and cleansing enemas are given when indicated during the progress of the cases.

Before ipecac was used every one of our proved cases of amœbic dysentery was transferred to another hospital for treatment. After the beginning of the ipecac treatment 75 per cent of the cases were discharged to duty and the remainder will probably soon be well.

REPORT ON LIGATURE MATERIALS AND THE TREATMENT OF SYPHILIS BY THE HYPODERMIC METHOD, UNITED STATES NAVAL HOSPITAL, CANACAO, P. I.

By H. W. SMITH, *Assistant Surgeon, U. S. Navy.*

Silk and silkworm gut, now issued, may be subjected to 120° C. for 30 minutes without deterioration.

It was found necessary to chromicize all gut to give it the requisite degree of hardness and to prepare personally all suture material.

The method used is as follows:

1. Bottles of thick glass with tight screw tops are sterilized and filled with alcohol.
2. Catgut is dried in oven.
3. Gut is immersed in 1:4000 chromic acid solution for 12 hours.
4. Gut is again dried and placed in the bottles of alcohol.
5. Bottles are then subjected to 120° C. for 20 minutes and not opened until for use.

Winding gut on glass or metal reels causes it to break readily at the angle made by the edge of the reel, gives a permanent spiral set, and makes handling awkward.

It is recommended that all forms of suture material be supplied in hermetically sealed glass tubes, immersed in absolute alcohol, and in skeins or coils, and that each tube, except those of Kangaroo tendon, have a guaranty attached that the suture material contained can be sterilized in an autoclave for 30 minutes at 120° C. without affecting its form or tensile strength.

TREATMENT OF SYPHILIS.

Type of disease met is usually severe. Chancre is often phagedenic, suppurating buboes are common, secondary symptoms are ushered in by fever, prostration, and widespread pains, and the eruption is universal, destructive in character, and accompanied by marked involvement of mouth, throat, and ears.

The usual methods of treatment were abandoned as utterly inadequate for treating the disease in the Philippines, and bichloride of mercury dissolved in salt solution in the strength of one-half grain to 30 minims was given hypodermically as the routine treatment. It was found that three-eighths of a grain could be given every three days for long periods without causing toxic disturbances and would prevent the development of any symptoms.

TECHNIQUE.

An all-glass syringe of 2 cc. capacity and platinoiridium needles previously boiled.

Buttocks used entirely, a new location being selected each day.

Area scrubbed with soap, water, corrosive, and alcohol, and painted with tincture of iodine.

Needle first inserted. If no blood flowed it was assumed needle was not in blood vessel. Syringe attached and injection made. Puncture at once sealed with collodion Further attention to site unnecessary.

Injections made exclusively into tissues beneath deep layer of superficial fascia.

Forty-two patients were treated; 590 injections were given.

In not one case did new syphilitic lesions develop after the injection treatment was begun, and no cases of syphilis were condemned by medical survey. Pain was trivial; nodules were formed and were slightly tender for some days, but gave rise to no complaints; embolus was avoided by inserting needle alone and making sure no blood flowed before injecting bichloride. If sharp pain followed puncture it was inferred a nerve had been injured, needle was withdrawn and reintroduced. No untoward complications followed 590 injections. One year suffices apparently to cure syphilis permanently.

REPORT ON SANITARY CONDITIONS IN CONNECTION WITH THE NAVAL HOSPITAL SITKA, ALASKA.

By A. STUART, *Passed Assistant Surgeon, U. S. Navy.*

The population of the town of Sitka is made up of Indians, Russians, halfbreeds, and Americans. It is said there are few full-blooded Russians left. The Indian village is located along the water front on the western side of the town. The Indians live in frame houses, which are insanitary on account of the filthy habits of their occupants. Owing to the prevalence among them of syphilis and tuberculosis, especially the latter, the death rate is increasing and they are slowly decreasing in numbers. The Americans live in the new part of the town, toward the east, built since the first naval vessel, the historic *Jamestown*, was stationed here. The marine barracks, jail, custom-house, governor's official residence, principal stores, Russian cathedral, and houses of the Russian people are located in the older part of the town.

The town is beautifully situated on comparatively flat land on one of the finest harbors in Alaska. The bay is surrounded by snow-capped mountains, from which streams flow thru the town and furnish excellent drinking water and good water power. These streams are tapt by mains some distance up the mountain side to prevent contamination of the drinking water. The town is not incorporated, and has no town officials, no board of health, and no doctors. The only officials are the Territorial governor, the United States deputy collector, and the United States deputy marshal, who, with the aid of two guards and two Indian policemen, maintains law and order. The marine command is quartered in a comfortable two-story frame building, with a double piazza in front. The upper piazza is inclosed with glass windows, which can be opened or shut at pleasure, and provides for the men off duty a pleasant lounging place, which is sunny in winter and cool in summer. The commanding officer of marines occupies a two-story frame building. These buildings lack proper heating facilities. The barracks are heated only by stoves and the commanding officer's quarters by open fireplaces. These methods of heating are exceedingly unsatisfactory in the climate of Alaska. The post exchange is excellent, and its only drawback is the lack of authority to sell beer, which the enlisted force obtain only a stone's throw from the barracks. The strength of the marine command is kept at about 50 rank and file.

SELECTED MEDICAL, SURGICAL, AND SANITARY NOTES FROM SHIPS, SHORE STATIONS, AND HOSPITALS.

UNITED STATES NAVAL HOSPITAL, SAN JUAN, P. R.

(*Note.*)

G. PICKRELL, *Surgeon, U. S. Navy.*

A case of acute tetanus treated with antitetanic serum injected into the right lateral ventricle.—On October 12, 1905, a hospital apprentice, aged 22 years, while bathing in the surf, received a punctured wound on inner side of right leg just below knee. The wound bled freely at the time, but caused no further trouble until October 20, when a small piece of barnacle worked out. On October 21 he complained of coryza and of soreness and stiffness of the jaws. On the 22d these symptoms became more severe, the patient was very nervous and restless, swallowed with difficulty, and complained of a choking sensation in the throat and of a feeling of oppression in chest. On the 23d there was decided contraction of the masseter muscle, the patient being unable to open his mouth more than half an inch. Auscultation showed a marked muscular murmur over the muscles of the jaws, neck, and chest, evidently due to vibrations of the fibrillæ of the muscles. An injection of about 10 cc. of antitetanic serum was given him under the skin of the abdomen. An area, about three-fourths of an inch in diameter was excised around the wound, and the latter cleansed with pure carbolic acid. At 6.30 p. m. patient had a rather severe convulsion which involved the muscles of the jaws, neck, and chest, and lasted about five minutes. There was some opisthotonos, the head being drawn back perceptibly and some arching of chest. Auscultation showed that the muscular murmurs were increased in intensity and extent. Morphine, chloral, and bromides were given him. On the morning of October 24 patient had three convulsions, becoming more general in character with each successive attack. Profuse perspiration followed the paroxysms. Amyl nitrate was given him by inhalation, and at 9.45 a. m. 10 cc. more of the antitetanic serum was injected under the skin of the abdomen. About 10 a. m. he had another convulsion, probably due to the disturbance incident to the injection of the serum. During the preceding twenty-four hours patient had received chloral and morphine pro re nata. At 12.45 p. m. 400 cc. of urine was drawn off. The disease was evidently making a decided impression on patient's strength, each convulsion being more general than the one preceding it and with greater tendency toward opisthotonos. In addition, the muscular murmur was now very pronounced and showed that the tonic contractions of the muscles extended over the whole body and the extremities. The patient's condition was looked upon as desperate, and it was decided to resort to heroic measures.

At 3 p. m. October 24 the following operation was performed by Surg. George Pickrell, U. S. Navy, assisted by Passed Asst. Surgs. E. M. Blackwell and C. S. Butler, U. S. Navy:

Patient was chloroformed and a ½-inch trephine entered 1¼ inches back of right auditory canal and 1½ inches above Reid's base line. The button of bone was removed and placed in warm normal salt solution, no injury having been done to the dura. On the opposite side of the head a point was taken 1¼ inches behind the left auditory canal and 3 inches above Reid's base line; the index finger of the left hand was placed upon the latter point, and a small canula with a blunt trocar was entered thru the opening on the right side and in the direction of the finger on the left side of the skull for a distance of 3 inches, the point at which the right lateral ventricle should be entered. The trocar was then withdrawn from the canula and was followed by a flow of serum from the ventricle. An aspirating syringe, charged with antitetanic serum, was screwed to the end of the canula, and 3 cc. of antitetanic serum was injected into the ventricle. The canula was now carefully withdrawn until it emerged from the brain substance but not from the membranes. It was then deprest, past backward in the arachnoid space, and 3 cc. of antitetanic serum was injected into the subdural space. The button of bone was replaced and the periosteum and scalp were stitched over it. Apparently very little injury was done to the brain, and the patient reacted well from the operation. The disturbance incident to removing him from the operating room to his bed was, however, the cause of a fairly severe general convulsion, lasting some minutes.

Patient then rested fairly well, and at 10 p. m. a hypodermic injection of 10 cc. of antitetanic serum, and also one of one-fourth grain morphine with 1:100 atropine were given him. He rested well during the night, but between 4 and 5 a. m. on the 25th he had two general convulsions with an interval of only a few minutes. These convulsions were neither so severe nor so general in character as those which had preceded them. On the morning of the 25th the patient's temperature had gradually risen to 101.8° F. (per rectum). Previous to the operation it had remained nearly normal. Hypodermic injections under skin of abdomen of 10 cc. of antitetanic serum were continued morning and evening until the patient had received 100 cc. in all. From time to time there were slight localized spasms, but no more general convulsions. The temperature gradually fell till on the 30th it was almost normal. On the 31st it rose to 101.4° F., and at 3 a. m. November 1 reached 101.6° F. Within twenty-four hours it again fell to normal, and thenceforth convalescence was uninterrupted, and the patient was discharged to duty, well, on December 6.

Attention is particularly called to the muscular murmur heard in this case. Its extent and intensity are no doubt the best indices we have of the amount and severity of the infection and are valuable aids in prognosis.

U. S. S. ALABAMA.

(*Note.*)

C. J. DECKER *Surgeon, U. S. Navy.*

Fracture of skull.—A mail orderly, returning from shore, was standing on the forward deck of our steam launch, which was aground astern. A steamer backed up, took our painter over a small bit in her stern, and went ahead full speed. The resulting jerk started our launch from the shoal, but the bit was pulled out, and the elasticity of the line brought the cap of the bit back with considerable force. It struck the mail orderly in the forehead and crushed in the skull. He fell overboard, but was pulled out and brought on board in about fifteen minutes. Consciousness was not lost at any time prior to the administration of ether. He walked up the gangway ladder with slight assistance and talked rationally with the officer of the deck.

On the operating table his heart suddenly became weak and his mind dulled. By the use of heart stimulants subcutaneously and the application of dry heat externally to the trunk and extermities the circulation became stronger and ether was given.

The injury to the anterior plate of the frontal bone was 3 inches long and extended 2 inches above the left orbital arch. All fractured bones were comminuted. The depression of the inner plate was an inch and a half in diameter, nearly circular, and a half inch deep.

The fractured parts were removed together with the left orbital arch to the left nasal bone, the left orbital plate of the frontal, the left lacrimal bone, and parts of the left orbital plate of the ethmoid. The horizontal plate of the ethmoid was fractured but not removed. The roots of the lesser wing of the sphenoid were fractured but left in situ, as they were not displaced.

The dura mater was lacerated but not penetrated. The periosteum was detached from the fragments. At the site of the origin of the orbital muscles it was loosened but still held by membranous filaments. The hook for the pulley of the superior oblique was removed, but the tissues were held in place by a catgut suture.

There was rapid healing without infection. Recovery from the anesthetic was good, and there was no mental disturbance due to the hurt or to the surgical manipulations.

Immediate recovery was good, but later slight external strabismus with diplopia developed, due probably to insufficiency of the superior oblique. The other orbital muscles regained their proper functions, altho none would act for several days after the operation.

The patient noticed that his memory began to fail shortly afterwards, and, altho he again undertook the duties of mail orderly, he found that he was forgetful and requested his discharge.

U. S. S. MISSOURI.

(*Note.*)

R. M. KENNEDY, *Surgeon, U. S. Navy.*

Cerebral hæmorrhage.—March 17 about 7.45 a. m. a private marine, aged 24 years, while engaged in an altercation with another member of the crew, was struck with the bare fist on the tip of the lower jaw. The blow produced a slight contusion, with some ecchymosis of the inner side of the lower lip. The man became immediately unconscious and died in about ten minutes after the blow was inflicted. Eyewitnesses of the fight testified that the blow was not a hard one.

The autopsy established the cause of death to be a large blood clot in the fourth ventricle, a clot in the third ventricle, and hemorrhage in the iter a tertio ad quartum ventriculum. After careful search the orifice of the ruptured artery could not be found. No arterial changes could be detected. There was no fracture of the skull and no evidence of other cerebral injury. The heart was normal. There was nothing known in the patient's history to cause arterial disease at his age.

Tuberculosis pneumonia acuta.—On the evening of February 26 a negro, 26, history negative, cough since February 1, and slight pain in left side of chest for a few months, was suddenly seized with a pronounced chill of two hours' duration, high fever, rapid respiration, soon followed by severe pain in the left side, dry cough, and later expectoration of tenacious mucus streaked with blood, sometimes rusty in appearance. Diagnosis, acute lobar pneumonia of upper and part of lower lobe of left lung. The expectoration soon became muco-purulent and greenish in color, which Traube considers a diagnostic point of special importance in acute phthisis. March 9 severity of all symptoms increased. Tubercle bacilli found in sputum in enormous numbers. Prior to this attack the only suspicious symptoms were cough of three weeks' duration and very mild pain in the left side of the chest for several months, which was never reported.

In connection with this case the statement of Osler may be quoted: "It is by no means widely recognized in the profession that there is a form of acute phthisis which may closely simulate ordinary pneumonia."

NAVAL STATION, HAWAII.

(*Note.*)

W. E. TAYLOR, *Medical Inspector, U. S. Navy.*

Endocarditis (*suppurative*).—A seaman was admitted from U. S. S. *Lawton* May 28, 1905. Diagnosis, febris intermittens. Malarial parasite absent. Chills several times daily, followed by sweats. Examination of heart and lungs negative. Blood count June 3 to 6 showed leukopenia. Urinalysis negative thruout. Widal reaction June 9, negative. Diarrhea, late. Past into typhoid condition and died June 20. Postmortem examination showed ulcerative endocarditis. Mitral and tricuspid valves involved. Ulcers mostly healed. Organized clots in both auricles and left ventricle. Abscess of body of left rectus muscle, with necrosis. Abscess of body of left deltoid. Spleen hyperæmic and friable, with small necrotic abscess. Kidneys large, white, pyramids almost obliterated, capsule slightly adherent. Liver and lungs macroscopically normal. Diagnosis made post-mortem, altho numerous consultations had been held. Endocarditis had been suspected and eliminated on account of leukopenia.

LEAGUE ISLAND YARD.

(*Note.*)

M. F. GATES, *Surgeon, U. S. Navy.*

Rabies.—On May 4, 1905, while attempting to eject a dog from the grounds, two private marines were bitten, one on the right thigh and the other on the left wrist, thru the clothing, by a stray collie dog. As far as could be ascertained, nothing unusual in the dog was noticed by the owner the previous day. The morning of May 4 he ran the distance of 16 miles between his home and the navy-yard and, according to report, bit numerous animals on the way. When observed in the barracks by one of the men bitten he was playing with the bodies of two kittens he had killed.

Immediately after biting the two marines and a civilian garbage collector the dog was killed and his head was sent to the Pepper clinical laboratory under the direction of the Pennsylvania State veterinarian, who diagnosed the case as rabies. This was confirmed by the death ten days later from rabies of a dog bitten by the collie.

The bites in the marines were immediately washt out with sublimate solution, then with alcohol, scrubbed with soap and water, and drest with bichloride solution 1:500.

May 10 the men were transferred to the naval hospital, New York, for treatment.

Both complained only of slight local pain. On May 11 treatment was begun with material obtained from the New York board of health. The injections were continued the prescribed time. Local pain and tenderness followed the first few injections.

The original wounds healed rapidly. June 19, after the required period of observation of forty days, one of the men was discharged to duty; the other had deserted five days previously.

The opinion of the State veterinarian of Pennsylvania, Dr. Leonard Pearson, was based on the observation of pathological changes believed to be characteristic of the disease discovered by Van Gehucten and Nelis in 1900.

These changes are found in the medulla and in the plexiform and Gasserian ganglia, from which, after hardening, sections stained with hæmatoxylon and eosin show a proliferation of the cells of the endothelium of the capsules of the ganglion cells; in advanced cases the endothelium destroys practically all the ganglion cells.

REPORT ON ACCIDENT ON U. S. S. KEARSARGE.

By I. W. Kite, *Surgeon, U. S. Navy.*

About 3.15 p. m. on the 13th of April, while engaged in target practise off Cape Cruz, Cuba, the practise with the forward turret had been completed, but a charge still remained in the left 13-inch gun, as the time limit expired before it could be fired. In removing the charge from the gun the steel extractor used by one of the men came in contact with an electric switch in the turret, with the result that some of the metal of which the switch was composed melted from electric action, and dropping to the turret floor, ignited three sections of the powder charge which had been removed from the gun. The other section was in the gun and did not ignite. The amount of powder was slightly over 165 pounds.

In the ammunition hoist for the right 13-inch gun there was a full charge of powder, but as it was beneath the turret floor it fortunately did not take fire.

At the time of the accident there were fourteen persons in the turret—twelve men and two officers—and all were more or less severely burned. Of the total the two officers, Lieutenants Hudgins and Graeme, and eight men died; this includes one man who died after transfer to the *Maryland.*

Lieutenant Hudgins was in charge of the turret and Lieutenant Graeme, who was attached to the *Maryland*, was in the turret as umpire. Both died early next day, Hudgins at 3.45 a. m. and Graeme about 7 a. m. The latter had been transferred to his ship after the accident.

Five men died before 10 p. m. of the day the injuries were received, one within half an hour after being brought on deck and the other three at various intervals.

After the accident it was suggested to the commanding officer that the ship return to Guantanamo, as it was apparent that many of the injured would die, and with the ship at Guantanamo those who had a chance for recovery could be more easily provided with comforts and necessities and advantage could be taken of the first opportunity to transfer them home. At about 6 p. m. we left the range and arrived at Guantanamo at 9.30 next morning. In the afternoon of the 15th five men were transferred to the *Maryland*, which had arrived in the meantime, for transfer home. One of them died April 16, before the *Maryland* left port. The remaining four were taken to the naval hospital, New York.

As to the character of the injuries received by the unfortunate victims, nothing was noted of particular interest from a surgical point of view. The heat was so intense that the skin, where exposed, was completely destroyed in an instant, and in many cases it either slipped from the body and limbs and hung in shreds or fell on deck, or huge blisters immediately formed over the burned areas. Those badly burned in the face presented that waxen, ghastly appearance characteristic of burns from smokeless powder. Several inhaled fumes also, as was evident from the complaints of burning pains behind the sternum and from the œdema of the lungs which rapidly supervened in three of the fatal cases. In Mr. Hudgins's case there was total suppression of urine.

In addition to the effects of sudden exposure to the intense heat generated by the combustion of the smokeless powder there seemed to be also certain poisonous effects from the inhalation of the fumes.

One man was very violent and required restraint almost to the hour of death. In another man, who attempted to enter the turret while it was yet full of gas, a peculiar form of emotional disturbance bordering on insanity supervened, requiring him to be kept under observation for about twenty-four hours. Three men, uninjured and not connected with the turret, jumped overboard from fright, but were picked up by ships' boats.

The injured were removed from the turret to the sick bay by their shipmates in a remarkably short period of time.

CONCLUSION.

The increase of work incident to the growth of the Navy has been efficiently performed by the clerical force of the Bureau, the number of which has not been correspondingly increased. Commendation is due them for their faithfulness and attention to duty, without which the business of the Bureau could not have been kept up to date.

The various medical supply depots have been conducted efficiently, and medical and surgical supplies have been forwarded with promptness and dispatch.

A marked improvement in the personnel of the Hospital Corps has resulted from the course of training in the Hospital Corps Training School, which was established at the naval hospital, Norfolk, Va., in 1902. It is noted with satisfaction that the Hospital Corps, as a whole, has performed its duties creditably and in many instances with unusual ability and devotion.

The Medical Department has shown a high state of efficiency. The surgical work done comprized the range of operations usually performed in civil hospitals and has met with most gratifying success. The addition of modern operating rooms to hospitals and their installation in battle ships and large cruisers have afforded facilities for operative surgery in all its branches, and the Bureau notes with satisfaction that the officers of the Medical Corps have appreciated these improved facilities, and have shown by their efficient work a laudable intention to maintain the surgical service of the Navy in conformity with the highest professional standards.

A comprehensive review of the work of the past four years shows that the efficiency of the medical establishment has progressively increased. As far as the appropriations would permit, the old hospitals have been renovated and improved. Operating rooms with the most modern equipment have been added to some, and excellent facilities for operative work have been provided in the others. At the Naval Academy, the Naval Medical School, and Canacao, P. I., new hospitals have been built, which combine the newest and best ideas in hospital construction. A new naval medical supply depot has been completed at Brooklyn, and new buildings for dispensaries have been built at the Boston, New York, and Norfolk navy-yards.

The hospital ship *Relief* has been fitted out and put in reserve at the Mare Island yard, and a complete medical and surgical outfit has been provided for her and stored ready for use in the naval medical supply depot at that yard.

The Hospital Corps Training School at the naval hospital, Norfolk, Va., was established in 1902. The development of this training school will be carefully guarded and promoted and its course of instruction will be extended when the hoped for increase in the Corps makes it practicable.

The Naval Medical Examining Board was moved from New York to Washington in 1902, and included in the reorganization of the Naval Medical School for newly commissioned officers of the Medical Corps. The building of the Museum of Hygiene was adapted for purposes of instruction and provided with the best facilities for laboratory work in bacteriology and chemistry. May, 1905, the title, Naval Museum of Hygiene and Medical School, which was first employed, was changed by the Department's order to U. S. Naval Medical School. Besides the course of instruction for newly commissioned medical officers, a second term, or summer course, has been instituted in the school for surgeons and passed assistant surgeons.

It is hoped to continue the development and improvement of the medical establishment of the Navy in all its branches; to secure new dispensaries at certain yards, new supply depots at selected naval stations, facilities for the necessary detention and segregation of recruits at naval training stations, barrack buildings at receiving stations for recruits, a nurse corps of trained women nurses, and a corps of dental surgeons for the Navy; to renovate and remodel existing hospitals and to build new ones at certain localities indicated in this report. It is hoped also that the recommendations of the Bureau to the Department for increasing the efficiency of the Hospital Corps and for relieving the present stagnation in promotion in the Medical Corps may meet with favorable action by Congress.

The Bureau records with profound regret the loss to the Medical Corps, by death, during the year of two of its valued officers—Medical Inspector D. O. Lewis, U. S. Navy, December 16, 1905, on board the U. S. F. S. *Chicago*, at Honolulu, and Assistant Surgeon James Miller, jr., May 13, 1906, on the island of Midway.

P. M. RIXEY,
Surgeon-General U. S. Navy.

The SECRETARY OF THE NAVY.

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O

NAVY DEPARTMENT
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT

OF THE

Surgeon-General, U. S. Navy

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE

SECRETARY OF THE NAVY

FOR THE FISCAL YEAR

1907

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REPORT

OF THE

SURGEON-GENERAL UNITED STATES NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1907.

SIR: In obedience to instructions contained in the Department's letter of July 1, 1907, I have the honor to submit a report of the operations of this Bureau for the fiscal year ending June 30, 1907, together with a set of annual estimates for the fiscal year 1909. The report also shows the condition of the naval-hospital fund, and contains information and recommendations concerning the various subjects which appear in the table of contents, including tables and charts of important data relative to the health of the Navy and Marine Corps ashore and afloat for the calendar year 1906.

ESTIMATES.

No material changes have been made in the estimates submitted by this Bureau for annual appropriations, except that the phraseology has been slightly modified, in that "Naval medical supply depot" and "Naval Medical School" have been inserted in lieu of "Naval laboratory" and "Museum of hygiene and department of instruction" in the appropriations, Medical Department, Contingent and Repairs, these changes of titles having been previously authorized by the Department. The estimates of appropriations Medical Department and Contingent have been increased $15,000 and $5,000, respectively, for the fiscal year 1909 over the appropriations made for the fiscal year 1908, the increases being necessary to provide for the additional number of enlisted men in the Navy and Marine Corps authorized by the naval act of March 2, 1907.

Under public works the Bureau has submitted estimates for the construction and extension of hospital buildings and appendages at (*a*) naval hospital, Norfolk; (*b*) naval hospital, Puget Sound; (*c*) naval hospital, Pensacola; (*d*) naval hospital, Annapolis; (*e*) naval hospital, Great Lakes.

The appropriation requested for the naval hospital, Norfolk, was authorized by the naval act of June 29, 1906, in which act $100,000 was appropriated, and work not to exceed $200,000 in cost was authorized. This estimate is for the completion of the appropriation previously authorized.

The appropriation requested for the naval hospital, Puget Sound, is like the appropriation for the naval hospital, Norfolk, for the completion of work authorized by the naval act of March 2, 1907, which act authorized work to cost not to exceed $150.000, of which sum $75,000 was appropriated. This estimate is for the completion of the appropriation previously authorized.

For the enlargement of the naval hospital at Pensacola, Fla., $50,000 has been requested. This hospital is a light frame structure which was built in 1875, when the aggregate strength of the Navy was about one-quarter of what it is now. It is the only naval hospital on the Gulf coast, and the importance of having a hospital adequate in size for the accommodation of the sick of our fleets when in winter rendezvous on that station is obvious. The naval appropriation act, approved March 2, 1907, provided for the repair of the present hospital building, but made no provision for its enlargement.

The naval hospital at Annapolis was built with an allotment made by the Secretary of the Navy out of the moneys appropriated for the rehabilitation of the Naval Academy, and cost for buildings alone, without including cost of inspection, etc., about $185,000. Owing to the greatly increased cost of labor and materials in the building trades, the Bureau was compelled to modify its original plans by omitting from the final plans adopted the isolation wards for infectious and contagious diseases and to omit one entire wing containing two wards at the main building. The building as it now stands has not the capacity to care for the sick of the Naval Academy and of the several vessels attached to the station, and without the isolation wards will be unable to properly accommodate the increased number of midshipmen now assembled at the Naval Academy in case of an outbreak of contagious or infectious disease. The estimate provides for $85.000 for the erection of new wards, $25,000 for two quarters for the staff, and $15,000 for quarters for the medical officer in command of the hospital; in all, $125,000.

The establishment of a naval training station on the Great Lakes necessitates suitable provision for the naval hospital, which should be completed and ready for the reception of patients at as early a date as the other buildings on the station are completed and when the station is placed in commission. Experience gained in the building of naval hospitals in Washington and Annapolis has demonstrated that a well-constructed building of sufficient capacity and with proper equipment can not be constructed at this time, when labor and material in the building trades are at present prices, for less than $250,000, for which sum the Bureau has submitted an estimate.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows, viz:

Balance on hand July 1, 1906		$732, 156. 12
Transferred to credit since July 1, 1906		741, 965. 16
Total		1, 474, 121. 28
Expended since July 1, 1906—		
By requisitions	$326, 728. 60	
By Auditor's debits	92, 216. 34	
		418, 944. 94
Balance on hand June 30, 1907		1, 055, 176. 34

Expenditures at the several naval hospitals under "Naval hospital fund, 1907" and "Naval hospital fund" on account of the fiscal year 1907, including all vouchers received in the Bureau to September 15, 1907, as follows: Naval hospital, Portsmouth, N. H., $9,207; naval hospital, Chelsea, Mass., $27,692; naval hospital, New York, N. Y., $54,882; naval hospital, Philadelphia, Pa., $32,470; naval hospital, Washington, D. C., $12,815; Naval Medical School Hospital, Washington, D. C., $24,686; naval hospital, Annapolis Md., $33,927; naval hospital, Norfolk, Va., $62,228; naval hospital, Port Royal, S. C., $2,047; naval hospital, Pensacola, Fla., $13,134; naval hospital, San Juan, P. R., $14,603; naval hospital, New Fort Lyon, Colo., $37,858; naval hospital, Mare Island, Cal., $49,834; naval hospital, Puget Sound, Wash., $5,627; naval hospital, Sitka, Alaska, $644; naval hospital, Canacao, P. I., $39,172; naval hospital, Yokohama, Japan, $19,151.

At the naval hospital, New Fort Lyon, Colo., established by Executive order of October 25, 1906, work is under way and authorized for the construction of a water system, wards, subsistence buildings, quarters, laundry, wells, etc., amounting to approximately $108,000.

The naval hospital, Canacao, is being enlarged by two additional wards and doubling the capacity, under the supervision of the Department of Yards and Docks, and there is about to be installed an ice-making plant and garbage crematory at an approximate expense of $117,000.

For the repair, improvement, and extension of naval hospitals the Bureau proposes to expend from the naval hospital fund the following sums during the four fiscal years ending June 30, 1911, under authority of section 3 of an act establishing navy hospitals (approved February 26, 1811; altered and amended by act approved July 10, 1832):

Naval hospital—		
Portsmouth, N. H.		$150,000
Chelsea, Mass		200,000
Newport, R. I.:		
Site	$75,000	
Buildings	200,000	
		275,000
Philadelphia, Pa		100,000
San Juan, P. R		75,000
Guantanamo, Cuba		50,000
Mare Island, Cal		25,000
Total		875,000

From the foregoing statement of the condition of the naval-hospital fund it is clear that the necessity for appropriations by Congress for the establishment of naval hospitals and for their extension and maintenance no longer exists, and that the revenues of the naval hospital fund provide an ample income to meet all necessary requirements, if authorized by the Secretary of the Navy, the sole trustee of the fund.

NAVAL MEDICAL CORPS.

At the beginning of the present calendar year the Medical Corps of the Navy consisted of 15 medical directors, 15 medical inspectors, 87 surgeons, 74 passed assistant surgeons, 62 assistant surgeons, and 17 acting assistant surgeons appointed for temporary service under the act of Congress approved May 4, 1898. There were 67 vacancies, 42 remaining from 1906 and 25 additional allowed by the act of 1903 as an annual increase for each year up to 1908. During the past fiscal year there were: One retirement for age, 3 retirements for disabilities, 1 death, 3 resignations, and 19 appointments as assistant surgeon, which at the close of the year left 58 vacancies to be filled.

As in 1905 there were 38 vacancies, in 1906, 44 vacancies, and in 1907, 58 vacancies, it is apparent that the Bureau is experiencing great difficulty in recruiting the Medical Corps to its allotted strength, to say nothing of the difficulty of securing a sufficient number of officers for the duties which the Medical Corps is called upon to perform. Allowing about 2 per cent each for sickness and leave it may be seen that there are only about 260 medical officers available for the care of nearly 43,529 officers and men of the Navy and Marine Corps, and for all purposes ashore and afloat, which theoretically gives a ratio of 1 medical officer to every 167 men. Eliminating properly from consideration all medical officers (27) on recruiting duty and those employed at the schools, laboratories, Bureau offices, and on board duty, the unit number of men estimated in relation to the residual strength of the Medical Corps becomes too great for one officer, with all his other duties, to supervise medically. In this connection it is well to remember that as the proportion of patients to a given number of medical assistants is increased beyond certain limits, just so surely is the possibility of proper supervision of individuals diminished and the risk of failure to gain favorable results for those coming under the care of the Bureau is run. Several causes have in the past acted to deter young men of the medical profession from seeking entrance into the Medical Corps of the Navy, and although many of the elements of dissatisfaction commented upon in previous reports have been removed, there are still certain defects affecting the status and opportunities of medical officers which will operate to continue the indifference with which service in the Navy is regarded by the profession at large. Consideration is invited to the responsibilities so vital to the welfare and efficiency of the Navy which devolve upon the medical officers. To prevent the feeble and ill-conditioned and, what is more important, the physically unfit from being imposed on the Government, and at the same time to amply recruit the ranks, the surgeon must exercise a careful professional discrimination at the rendezvous. To maintain the strength and efficiency of the ship's company, the isolated surgeon must not only be competent to treat, surgically and medically, all manner of disabilities, but to point out the best means of preserving health under all circumstances on shore and afloat. He must ever be ready to provide for the wounded in the hour of battle and to succor the afflicted and control the situation among those panic stricken by epidemic disease, and to him the Government must look to guard it against improper claims arising for pensions or the loss of service resulting from a respite from active duty.

Surely the duties of a naval surgeon demand for their proper and efficient discharge not only sound judgment and varied knowledge, but a high degree of broad professional acquirement. To secure men possessing these qualifications is not less important to the interests of the officers and men in the Navy and the Government in general than it is to maintain the fine traditions of the corps. It is a generally accepted and tenacious belief that there are personal and family sacrifices and privations, without commensurate reward, involved in a naval medical career, and it behooves those in authority to eliminate as far as possible all legitimate causes of complaint and make the Navy more attractive to those whom the service clearly needs. Among the remaining conditions which are reasonable causes of complaint may be enumerated: A disproportion of the grades, a sluggish promotion, and the deprivation of titles, such as the Army Medical Corps has enjoyed for years; but as the claims of the Staff Corps of the Navy and a desire to promote their efficiency were made the occasion for the appointment of a special staff board (composite in nature) on January 31, 1907, and as the results of its deliberations are now in the possession of the Department, the specific needs of the Medical Corps will not be made the subject of recommendation here. Suffice it to say that the Bureau looks with hope for departmental action in the matter, and trusts that the board's report may constitute the basis for legislative enactment, in connection with personnel legislation, during the pending session of Congress. Every legitimate effort has been made to attract properly qualified young men to appear for examination. Many inquiries for information regarding appointments have been received and not only have all these been carefully and painstakingly answered, but the custom of sending a medical officer to the leading medical colleges to make addresses for the purpose of giving information as to the nature and advantages of the medical service of the Navy has been continued. One medical officer was detailed for this special purpose in Philadelphia, where he addressed the graduating classes of the medical department of the University of Pennsylvania, the Jefferson Medical College, and the Medico-Chirurgical College. He also visited the various civil hospitals in Philadelphia, where many young resident physicians were interviewed on the subject. Moreover, circulars of information were sent to all medical officers stationed in the vicinity of medical colleges and civil hospitals with instructions to distribute the information supplied and when possible to interview likely candidates. By this means a broad field was covered and many young doctors were seen. The Bureau was convinced from observations that there was a deplorably widespread ignorance of service conditions and of the broad opportunities offered for a career in the Medical Corps of the United States Navy, and the idea has been to enlighten the profession in every direction by a plain and fairly comprehensive exposition of facts and thus stimulate an unprejudiced and intelligent consideration of the service and influence a substantial movement toward the Medical Corps of the Navy.

The Bureau's efforts have been only partially successful and the number of qualified candidates falls far short of the demand, but it feels that it has done all possible in the premises and can only await the correction of the remaining objectionable features of the medical service by legislative action.

The two medical examining boards, one at Washington, D. C., and the other at Mare Island, Cal., have been in constant session for the examination of candidates for appointment. Seventy-four permits have been granted, but only 43 candidates have presented themselves. The following table shows the number of applicants for admission to the Medical Corps of the Navy for the year, together with the place of examination and the result of the examination:

Where examined.	Total examined.	Number qualified.	Number rejected physically.	Number rejected professionally.	Number withdrew.
Washington, D. C.	39	18	4	10	7
Mare Island	4	1	2	....	1
Total	43	19	6	10	8

The percentage of successes in comparison with the number examined is small, but the vital importance to the service of maintaining a reasonably high standard of professional qualifications in the examination preliminary to appointment can not be sacrificed to a mere demand for numbers. The examination, while thorough, is eminently fair, and any candidate who has been graduated from any one of the various reputable medical colleges in the United States has no more reason to fear it than he had to fear the examination for his degree or the examination before any one of the leading State boards. In this connection, it may be said that the collateral examination, in so far as it embraces languages, history, general literature, geology, and zoology, has been a needless cause of alarm to the prospective candidate and doubtless has often actually determined him to forego a position in the Navy, when he would otherwise have attempted the examination for appointment. In the pursuit of his medical education the freshness of his academic acquirements is dimmed and he, perhaps naturally enough, fears the result of an examination upon subjects long since dropped as serious studies and ones that he has not the time to review.

It therefore seemed desirable to give the examining board discretionary authority to omit this part of the examination in the case of applicants holding diplomas or certificates of graduation from reputable literary or scientific colleges, normal schools, or high schools, or graduates of medical schools which require an entrance examination satisfactory to the members of the Naval Medical Examining Board.

ACTING ASSISTANT SURGEONS.

The employment of acting assistant surgeons under the law of 1898 has developed an importance to the best interests of the service which should not be undervalued. In the report of 1906 the Bureau communicated the details of a plan designed to offer additional inducements to applicants for appointment as acting assistant surgeon, with a view to making this list a reserve supply of medical officers, from which to intelligently recruit the ranks of the regular corps, as well as a means for meeting the pressing demands of the Navy for additional medical service. It has therefore become the settled policy of the Bureau to afford the young men holding acting appointments every facility as well as specific aid in their preparation to obtain commissions as assistant surgeons in the regular service. To this end it has been considered necessary to limit the age of entrants to between 21 and 28 years, thus giving them a sufficient latitude of time in which to effect the purposed preparation before reaching the statutory age limit. The successful candidates are ordered to temporary duty wherever needed, preferably to a naval hospital where they are under the surveillance of a member of the regular corps until the 1st of October next succeeding their appointment. At that time they are sent to the Naval Medical School, Washington, D. C., for a six months' course of instruction. Upon the completion of this course, or as soon thereafter as the exigencies of the service will permit, or prior thereto, if prepared, they are examined for the grade of assistant surgeon. If found not qualified their appointments are revoked.

This practice of the Bureau with regard to the present plan of recruiting acting assistant surgeons has proven satisfactory and the probationary period of such a grade operates beneficially. On the side of the Government, it insures an opportunity for observation of the prospective candidate for the regular service and an estimation of his professional and general fitness; it insures greater contentment on the part of the candidate so commissioned, and hence gives greater stability to the younger element of the corps; and, furthermore, it prepares for a more efficient performance of duty from the beginning, by virtue of the familiarity with the service conditions. Apart from the benefits above enumerated, the acting assistant surgeons have rendered valuable service as such, performing their assigned duties in a gratifying manner and filling certain posts to the benefit of the service. On the side of the candidate, it gives him an opportunity to acquire familiarity with service conditions and to reach an independent conclusion as to his fitness for the service. The continued success of the Bureau's policy with regard to the appointment of acting assistant surgeons warrants the perpetuation of the grade.

The plan of examining candidates for appointment as acting assistant surgeons at various places convenient to medical centers, where there are a sufficient number of medical officers for the organization of a board, brings this opportunity of appointment to the naval service within the reach of those men who feel unable or unwilling, after the expense of a long college course, to make a further outlay in seeking examination at a distance from their settled location, particularly in face of the uncertainty of passing the physical and professional requirements, and it is believed that many promising young men, who would otherwise have been lost to the service, have been gained by this procedure.

The number of vacancies in the grade is constantly fluctuating, but at the close of the fiscal year there were 7. Thirty-four permits to appear for examination have been granted, but only 22 applicants presented themselves.

Table showing the number examined for admission as acting assistant surgeons and place of examination and result.

Where examined.	Total number examined.	Qualified.	Rejected physically.	Rejected professionally.	Withdrew.
Washington, D. C	7	4	1	1	1
Mare Island	4	2	....	1	1
Chelsea	3	1	1	....	1
Philadelphia	6	2	1	....	3
New York	2	2	....	....	....
Total	22	11	3	2	6

From the above table it will be seen that the results of this plan were very satisfactory. As an improvement upon the present procedure, and with a view to meeting the service demands with greater facility and at less expense of time and money, it is proposed hereafter, with the Department's approval, to combine the examinations necessary to graduation from the Naval Medical School and those preliminary to a commission as an assistant surgeon.

NAVAL MEDICAL SCHOOL.

The Naval Medical School completed its fifth session on June 30, 1907, and the report of its president shows a continuance of the gratifying results which have rewarded the work of the institution ever since its establishment in 1902. Indeed, the succeeding years in the history of its operations have been characterized by splendid improvement in every feature of equipment and instruction, and it may now be truthfully said to be on a firm footing as regards its value to the individual, the service, and the profession, and to have taken its place among the best postgraduate schools not only of this country, but of the world. Improvements will continue in accordance with the dictates of medical progress and no effort will be spared by the Bureau or officers of the faculty to maintain the acknowledged high standard which the Naval Medical School has reached.

The school opened on October 1, 1906, and its work extended over a period of nine months, embracing, as is now the observed division of time, a winter term of instruction, from October 1 to March 31, for the novitiate of the Medical Corps, and a spring term, from April 1 to June 30, for those officers who have recently returned from sea duty, or who for other reasons feel the need of professional refreshment. The attendance for the former consisted of 18 assistant surgeons and 11 acting assistant surgeons, all of whom received certificates of graduation with the exception of 1 acting assistant surgeon. The attendance for the spring term consisted of 5 surgeons, 7 passed assistant surgeons, and 1 assistant surgeon.

The course of special training, as outlined in previous reports, with minor, though valuable additions, such as meat inspection, pharmaceutical demonstrations, climatology, and dental emergencies, has been closely followed and the interest and industry displayed by the students manifest a continued and growing appreciation of the advantages afforded by the school. Applications are constantly being received from medical officers of the service for the privilege of its advanced practical instruction, and this fact alone, as hard work is expected, speaks well for the ambition of officers, and attests the high regard in which the school is held throughout the service. Its proven value and "the possibilities of its future usefulness to every branch of the service and to the profession in general can not be overestimated, and there are few graduates of even the country's best medical schools, who are afforded an opportunity equal to that of a newly commissioned assistant surgeon of the Navy for rounding out their education as physicians and surgeons."

While theory is given the place it demands, the cardinal idea of the work of the school is to fit officers for their practical duties and prepare them in the professional branches peculiar to naval requirements. The wisdom of establishing the school has been abundantly demonstrated and in this connection several considerations present themselves as worthy of brief comment.

The school has minimized that embarrassment in the performance of duties which sometimes attended the first entrance on board ship of the naval surgeons of former days. The young surgeon of to-day does not experience an embarrassment consequent upon an entire lack of acquaintance with the character and discipline of ship life, the routine of drill, the nature of the surgeon's broad responsibilities, and the particular professional conditions met with in naval service, owing to his preparatory training at this institution.

Tropical diseases have come to occupy a large place in naval medical experience. The nation's interest is so firmly fixed, and the naval surgeon's sphere of practice is so frequently placed, in tropical latitudes, that now, more than ever, he is called upon to diagnose and treat their contributions to human suffering, and the development and scope of this branch of medicine has reached such proportions that too much stress can scarcely be laid upon the special need that the naval surgeon be prepared in this important field of work.

Again, while it is required that the naval surgeon be well qualified in all professional branches, the science of military and naval surgery represents a special need. Whenever an armed force of sailors or marines is landed, as frequently happens, for they are often the advance guard and sometimes participate in permanent occupation, such a force is subject to all the usual hazards of operations on shore, and it is the liability to such duty which makes it necessary that the naval surgeon shall be posted with regard to military surgery.

Naval surgery differs widely from civil and military surgery in certain notable respects, and its distinctive features are best represented by wounds inflicted by naval ordnance, by burns and scalds, and by other injuries peculiar to naval warfare. Therefore preparation for a naval battle does not consist solely in the general arrangements for the care of the wounded on board ship, although even that duty is not a simple problem nor one to be undertaken without its serious study as embraced in naval surgery. Indeed, naval surgeons begin to prepare for battle in the Naval Medical School, for unless they be professionally compe'ent and well instructed in the special requirements of this professionl field they will be of little service to the wounded during a naval engagement.

Naval hygiene is another subject so distinct in the vast science of preventive medicine that it occupies a position of unusual importance among the other courses found necessary to fit the graduate in civil medicine for the naval service, and the time devoted to it would be none too long if it could be doubled. The courses in animal parasitology, medical climatology, and quarantine are also of extreme value in the preparation of officers for the efficient performance of their duties. Nowhere in this country can they receive that special training demanded by the naval service except at the Naval Medical School, and the work of this institution, therefore, is a continual and invaluable benefit to the Government. In direct line with the advantages thus derived and with a view to their furtherance, it is recommended that candidates be not accepted for the regular service until they have completed the course at the school. It is becoming generally recognized how difficult a matter it is to judge of a candidate's desirability for the service by the present system of examinations, carefully conducted and thorough as they are, and it is a distinct advantage to have the candidate under observation for a session, so that his mental fitness and other qualities which are required in the medical officer can be better estimated.

The medical colleges, even those which prescribe a four-year curriculum, are laboring under the disadvantage of too short a course, the ground to be covered for a thorough education in medical science having expanded to such proportions, and in this light the postgraduate course at the Naval Medical School fills an increasingly important need. It is becoming more apparent each year that the period of this postgraduate instruction is too brief and that the accommodations for the student officers and the laboratory provisions for class instruction will soon be inadequate. The school hospital will add greatly to the facilities for bedside instruction and it is the intention of the Bureau to transfer interesting and illustrative cases to it from other hospitals. Increased facilities for teaching operative surgery are contemplated for the next session and the establishment of a pathological museum is in progress as an aid to laboratory teaching. The school library is constantly increasing and its value to the student body and faculty for purposes of reference is growing proportionately. For the near future the Bureau entertains the plan of improving and enlarging the whole medical school establishment, as set forth under the heading of "New construction * * * ," and as depicted in the model prepared for the Jamestown Exposition. In connection with this scheme of enlargement it is believed that one course of nine months would be of greater service than the present division into two terms, both of which are too short; while entrants could take the full course, the older officers should be allowed to elect the subjects of which they are in most need and which are difficult or impossible to pursue at sea. This contemplated change, although impossible now in view of the existing shortage of officers, is under advisement by the Bureau for future adoption should public exigency permit. The professional benefit of such an extended course would be material and it is believed that the naval service at large would derive a decided benefit from the enhanced professional value of the graduate of such a course.

As in previous years the school has enjoyed the hearty interest and sympathetic support of the local medical profession, and much valuable and appreciated assistance has been rendered by distinguished scholars and specialists, whose gratuitous lectures have enriched the course.

The laboratories of the Naval Medical School, both bacteriological and chemical, in addition to the work of instruction, have accomplished a large amount of clinical work for the naval service and have served a most useful purpose in conducting investigations toward simplifying and perfecting methods of diagnostic precision, and devising laboratory procedure suitable to carrying on the requirements of modern practice with the limited facilities admissible on board ship. In this connection the laboratories of the United States Naval Medical School, through the work of Passed Asst. Surg. A. W. Balch, U. S. Navy, have recently given to the service a blood stain and a sterile typhoid emulsion for making the recognized diagnostic test, both put up in sealed tubes and prepared especially for use on board ship. Thus, these recognized aids to reliable work have been placed within the reach of every medical officer, and in such shape that they are preserved from deterioration and are easy of employment.

The following is a summary of the work done in the chemical laboratory during the period from July 1, 1906, to June 30, 1907:

1. The instruction of the class in chemistry.

2. The work called for in preparing apparatus, specimens, and solutions required in connection with the course of instruction and also for the use of candidates for admission and promotion. This work alone requires much more time than the course of instruction itself.

3. The analysis of 894 specimens of various kinds. The kind and number of these specimens were as follows:

Urine	876
Water	11
Milk	3
Stomach contents	1
Calculus (renal)	1
Fabric	1
Whisky	1

The specimens of urine came from the following sources:

Naval Medical School hospital	233
Naval dispensary	239
Medical examining board	171
Board for the examination of medical officers	117
Officers on duty in the building	29
Miscellaneous	87

EDUCATIONAL OPPORTUNITIES FOR MEDICAL OFFICERS THROUGHOUT THEIR SERVICE.

In this connection and in contrast to line officers it is to be remembered that medical officers find their greatest opportunity for professional advancement on shore in the vicinity of centers of medical activity and where there is access to some association with their colleagues. In such associations alone can they hope for that refreshment in the broad field of medical and surgical science to fit them for the accomplishment of the best results in their practice. The Bureau appreciates the disadvantages under which medical officers labor in this respect and is doing everything in its power to compensate for the isolation incident to duty at sea, by endeavoring to keep them in touch with the progress and improvements in every branch of the profession. There has been no time, perhaps, in which attention to educational opportunities was as important as it is to-day, in view of the vast amount of careful research being conducted and the new developments continually announced, and the Bureau finds comforting reward for its determination that the corps shall keep pace with the times in the progressive improvement of all grades.

The hospitals of the service and their equipment are being modernized as rapidly as possible and put in such shape as to be in consonance with the requirements of advanced practice, adequate provisions have been made for the emergency care of the sick and injured afloat, and the clinical and laboratory equipment of ships represents ample facilities for the scientific study and treatment of disease. Professional books and current medical literature have for many years been furnished by the Bureau to medical officers wherever stationed. But the growing importance of opportunities for the exchange of ideas and the prominent position awarded the higher technical training in the pursuit of modern medicine pointed to the need of additional training, which the Bureau has sought to provide by offering postgraduate courses at the Naval Medical School.

Postgraduate courses.—These courses at the United States Naval Medical School, originally intended solely for the instruction of entrants, have now been extended to those older officers who, returning from sea service, are in need of professional refreshment.

Unfortunately, the scarcity of medical officers and the exigencies of the service have limited the number who could be thus favored, but where this privilege could not be extended and a desire for special work was expressed by an officer it has frequently been found feasible to order him to duty at one of the medical centers where he could accomplish his object by utilizing leisure hours. Several officers have been detailed for study abroad with a view to acquiring dexterity in certain technique or gleaning new ideas and noting the developments in special lines of work, not only for their own improvement, but also for the specific purpose of imparting the information gained to their naval colleagues under instruction and to the service in general. One officer was allowed to delay en route to the United States from the Philippines for this purpose, while others have devoted their periods of leave to study at some large medical center, either at home or abroad. The medical officer of the Navy must be given some such recuperative educational opening from time to time, and it is hoped that in the near future conditions will admit of our meeting this need more systematically.

Medical associations.—One of the most valuable means by which physicians and surgeons keep abreast of the progress made in their profession is by attendance at the periodic gatherings of their fellows from all over the world, who assemble for discussion and the presentation of important facts, often the result of work along special lines of investigation. By these professional contacts the medical corps of the Navy is materially benefited and protected from the danger of stagnation to which the unavoidable isolation incident to certain service exposes them at times. For this reason the Bureau has taken advantage of courteous invitations from such associations to have the medical corps of the Navy take part in their meetings during the year, and medical officers have been regularly detailed by the Department on the recommendation of the Bureau to attend as representatives of the Medical Department of the Navy. Since the last report the Navy has been represented, as indicated, at the following associations:

Association of Military Surgeons, Buffalo, N. Y., September 11 to 14, by Medical Director M. H. Simons, U. S. Navy, and Surg. W. C. Braisted, U. S. Navy; Third Annual Conference of Council on Medical Education of the American Medical Association, Chicago, Ill., April 29, 1907, by Asst. Surg. N. T. McLean, U. S. Navy; Association of American Medical Colleges, Washington, D. C., May 6, 1907, by Medical Director J. C. Wise, U. S. Navy; Third Annual Meeting of the National Associations for the Study of Prevention of Tuberculosis, Washington, D. C., May 6 to 8, 1907, by Surg. E. R.

Stitt, U. S. Navy; American Medical Association, Atlantic City, N. J., June 4 to 7, 1907, by Surg. W. H. Bell, U. S. Navy; Conference of Red Cross Societies, London, England, June 10, 1907, by Medical Director J. C. Wise, U. S. Navy; International Congress of Hygiene and Demography, Berlin, September 23 to 29, 1907; International Anti-Alcoholism Congress, Stockholm, July 28 to August 3, 1907; International Congress on Psychiatry, Neurology, Psychology, and Nursing of Lunatics, Amsterdam, September 2 to 7, 1907; and International Congress on Physical Therapeutics, Rome, Italy, October 13 to 16, 1907, by Medical Inspector H. G. Beyer, U. S. Navy; Sixth International Dermatological Congress, New York, September 9, 1907, by Surg. Gen. P. M. Rixey, U. S. Navy, Medical Director G. E. H. Harmon, U. S. Navy, and Surg. E. R. Stitt, U. S. Navy.

In addition to the enumerated official delegates the Bureau notes with gratification that many other officers who were in a position to manifest their interest in these meetings have attended upon their own initiative, while many others have expressed a desire to do so, but could not be spared from their respective duties.

The fact that tangible benefit is to be derived from the professional intercourse of medical men, either in attendance upon fixed meetings of organized associations, or, less formally, in their more frequent contact for consultation or social purposes, during which current medical matters naturally interject themselves as subjects for conversation, suggests the desirability of a frequent intercourse of the medical officers of our fleets. It is expected that the fleet surgeons will recognize the advantages to be derived from such congregations and interest themselves in bringing them about from time to time.

The United States Naval Medical Bulletin.—The publication of this quarterly, authorized by the Department on March 20, 1907, marked the accomplishment of a long cherished plan to bring the Medical Corps of the Navy into closer professional touch. The first issue in April, 1907, represented a new departure which the Bureau hopes will conduce to the maintenance of educational efficiency. It is expected that through its pages the corps as a whole will profit, as will the service, from the experience and observation of the individual. By its publication the many excellent special communications relating to the profession in all of its allied branches may be preserved and utilized. It is believed that this publication is and will continue to be of value to the Medical Department of the Navy.

NAVAL HOSPITAL CORPS.

A hospital corps of not less than 1,000 men is now needed. To enlist and retain such a corps of the desired quality, it is believed that greater inducements for continued service must be offered. Unless a fair prospect of ultimate promotion, with consequent increase in pay, be held out as a reward for long and faithful service, the pecuniary advantages and comforts of civil life will, in the minds of those contemplating reenlistment, continue to outweigh the attractions of the naval service, handicapped as it is with the privations and inconveniences of sea duty.

The recommendations of the Bureau to increase the warrant grade of the Hospital Corps from 25, now allowed by law, to 50 was approved by the Department and included in the provisions of Senate bill No. 2206 and House bill No. 12846 of the Fifty-ninth Congress, first session. The bill, however, failed to receive final favorable consideration, although approved by four Secretaries of the Navy and favorably reported by the House Naval Committees. The same bill, No. 2206, was read before the Senate and referred to the Naval Committee.

A new bill, comprising the features of the bills cited, has been drafted for consideration by the next Congress. The increase in the warrant grade of the Hospital Corps made possible by this bill would encourage the most desirable hospital stewards to reenlist, and the authorization of the grade of chief pharmacist would give pharmacists the opportunity, now enjoyed by chief boatswains, etc., of promotion to the lowest commissioned grade. The Bureau is of the opinion that a hospital corps as nearly permanent in organization as can be obtained is essential for the proper care of the sick and injured of the Navy and that the proposed bill will favor the accomplishment of this desirable end, and therefore recommends its favorable consideration.

The Naval Hospital Corps, since its organization in 1898, has proved a great advance toward providing for the Navy a body of trained hospital attendants. A constant effort has been made to secure for the corps and retain in the service men of sobriety, intelligence, aptitude, and fair education. The hospital apprentices first class and hospital apprentices, upon whom the nursing devolves, are taught to perform their duties acceptably in about four years, and it is therefore apparent that at the end of their enlistment they have reached the point of greatest value to the service. It is discouraging to note, however, that every month now shows an increasing number of discharges of hospital corps men, and that a large number of these do not reenlist. The Navy is thus continually losing the services of many of those desirable men who have had training and experience. Moreover, new enlistments have not been sufficient to fill the vacancies thus created in the corps and are falling off in spite of all that can be done under existing conditions. In other words, while the demand for men has increased, their number has decreased.

Summary of enlistments and reenlistments in the Hospital Corps, United States Navy.

	Total in service.	Reenlisted in rating.	On first enlistment in rating.
Hospital stewards	225	79	146
Hospital apprentices, first class	252	51	201
Hospital apprentices	324	0	324

NOTE.—There are but ten hospital stewards who have ten or more years' service in this rating.

The above tabulation of enlistments and reenlistments clearly indicates the tendency, and we can expect nothing better until the rewards for continuous service are made more attractive; but the Hospital Corps frequently experiences loss in other ways. Numerous letters are forthcoming from hospital corps men asking for a change of duty, because it is found impossible to live in certain places, where detailed, on the present pay; or for discharge from the service in response to the needs of a dependent family, which can be better and more fully met in the pursuits of civil life; or for transfer to other ratings which, though indicating a desire to remain in the service, also indicates the greater opportunity for advancement and the more liberal pay and allowances of other branches. Not only is the prospect of advancement not encouraging beyond the grade of hospital steward, but the question of pay is involved.

The pay of the Hospital Corps was fixed by the act of June 17, 1898, which created the corps, and it therefore does not come within the purview of the law providing for the pay of enlisted men of the Navy. Under existing laws and regulations, hospital stewards serving under permanent appointments receive but $60 per month, while enlisted men of the same rating and serving under similar circumstances in other branches of the Navy receive $70 per month (Executive order of June 26, 1903). Again, under the provisions of an Executive order dated November 27, 1906, incorporated in General Order No. 34, $5 per month additional during the second period of enlistment, and a further sum of $3 per month during each subsequent period of service is allowed for each rating in the Navy, *except to members of the Hospital Corps.* For the same reason, viz, the act of June 17, 1898, hospital stewards, hospital apprentices first class, and hospital apprentices do not receive 75 cents a month in addition to the pay of their rating, which is given to all other enlisted men of the Navy (except mates) for each good-conduct medal, pin, and bar.

Comparison of monthly pay.

Rates.	First enlistment.	Eighth enlistment.					Retirement.			
	Total pay.	Base pay.	Reenlistment allowance.	Bounty.	Medal and bar pay.	Total pay.	Base pay.	Fuel and quarters allowance.	Ration allowance.	Total pay.
Ordinary seamen	$19.00	$19.00	$9.52	$23.00	$4.50	$56.02	$43.14	$6.25	$9.50	$58.89
Hospital apprentice	20.00	20.00	9.52	....	....	29.52	22.14	6.25	9.50	37.89
Petty officer, third class	30.00	30.00	9.52	23.00	4.50	67.02	51.39	6.25	9.50	67.14
Hospital apprentice, first class	30.00	30.00	9.52	....	....	39.52	29.64	6.25	9.50	45.39
Chief petty officer	60.00	70.00	9.52	23.00	4.50	107.02	81.39	6.25	9.50	97.14
Hospital steward	60.00	60.00	9.52	....	....	69.52	52.14	6.25	9.50	67.89

The above table may serve to graphically show the injustice under which the Hospital Corps of the Navy is laboring and will account for much of the discontent manifested on all sides by the different grades of the corps. It is, in fact, the most important cause of dissatisfaction. The table shows the comparative monthly pay and the pay after seven continuous enlistments; also the pay on retirement. Many apprentice seamen are rated quartermaster, third class; gunners' mate, third class; or coxswain during the latter part of their first enlistment, so that they reenlist at $30 plus $5 plus $1.36, or $36.36 per month on their second enlistment, whereas our trained and specialized hospital apprentices, first class, receive only $31.36 per month on second enlistment.

As for an hospital apprentice, who is expected to nurse and care for the sick of the service, his position from a monetary standpoint will not compare with our colored mess attendants (no educational standard required) serving through different enlistments in the service. But when we come to a consideration of the condition of our hospital stewards, all well educated, intelligent, sober men, we find their remunerations and rewards for the faithful and efficient performance of responsible, exacting, and scientific duties very small, both during service and on retirement. Furthermore, the additional pay allowed for special details is not shared by the Hospital Corps. For instance, men who are detailed as instructors, or who have completed courses of instruction in the various training schools; men detailed for certain stations on board ship and for service on certain boats; deck hands detailed for duty with the fireroom force; those detailed as signalmen, gun pointers, gun captains, and ships' tailors, all enjoy additional pay allowances. Not so with the members of the Hospital Corps, no matter what their duties, and they are frequently assigned as instructors or called upon to expose themselves in their attendance upon cases of infectious and contagious diseases. Many of them have also completed courses of instruction at the training school. In this connection it may be of interest to note that trained nurses in civil life when employed receive from $20 to $35 a week, the value of their services, in any instance, being based upon the nature of the patient's illness, and whether or not the disease is of a contagious or infectious character. Length of service, when combined with professional fitness, is suitably rewarded in every department of public or private life, but not so with the Hospital Corps of the Navy. It is imperative that legislation be enacted to settle the question of pay in the Hospital Corps, at once and for all, by placing it on an equality with the rest of the service and giving it a merited share in the benefit of Executive orders which have, up to the present time, increased the pay of chief petty officers of other branches of the Navy to more than one-fourth above that of the chief petty officers (hospital stewards) of the Hospital Corps.

As for organization, actual experience during the past nine years and careful study of the present and future needs of the service have convinced the Bureau that the correction of the unsatisfactory provisions of existing law and reorganization of the Hospital Corps are required to secure and maintain a competent and efficient body of men for the care and treatment of the sick of the Navy. The needs of the corps have been fully set forth in the last four annual reports, and the Bureau has spared no effort to have proper and just provisions made. The Department has approved the recommendations of the Bureau concerning the corps and has urgently recommended favorable action thereon by Congress, and now again the Bureau earnestly recommends that request be made for prompt consideration by Congress of this matter, which is of such vital importance to the medical establishment.

An organization which will meet present needs, permit ready expansion in the event of war, and secure an efficient naval hospital corps, by virtue of effacing existing unjust discrimination and offering better inducements in pay and in prospect of promotion, is, in the opinion of the Bureau, provided for in the bill submitted to the Department on September 20, 1907.

The condition of the Hospital Corps on July 1, 1907, was as follows:

Rate.	Stations.	Force.	Shortage.
Hospital steward	257	225	32
Hospital apprentice, first class	818	252	66
Hospital apprentice	427	324	103
Total	1,002	801	201

This force (801) is utterly inadequate to provide the medical departments of ships in commission with full complements and at the same time supply the needs of naval hospitals, dispensaries, navy-yards, marine detachments, and recruiting offices, to say nothing of the requirements of special service, such as dental duty, torpedo-boat duty, and duty on vessels of the Fish Commission. Furthermore, under present conditions no reserve allowance can be made for the commissioning of new ships or exigencies, such as was represented recently in Cuba, where 20 hospital corps men are stationed, and it is with the greatest difficulty that a class can be organized and held at the Hospital Corps Training School for a proper course of instruction, so urgent are the service demands for more men. Indeed, the Bureau is constantly receiving complaints from officers throughout the service that they have not enough assistants to perform the duties which fall upon them for execution, and this state of affairs can not be corrected with the present organization and inadequate remuneration. As already shown, it is easy to assign reasons for this state of affairs which so complicates responsibilities and embarrasses the Medical Department in the conduct of its work on that plane of efficiency which modern standards exact. The bill contemplates nothing more than the establishment of the Hospital Corps on the same plane with the rest of the service as regards pay, allowances, and promotion. Both equity and justice and the welfare of the Navy's disabled demand it. The hope is entertained that it will be possible to secure its passage during the first session of the Sixtieth Congress. The Bureau went to the limit of propriety with the Department's sanction in trying to obtain favorable action in the matter by the Fifty-ninth Congress, and if the matter goes over again it means another year of difficulty in handling our sick and injured. Inefficient nursing means increased suffering and increased pension claims, and, no matter how skilled your physician or surgeon may be, the want of trained nursing is sure to be felt.

HOSPITAL CORPS TRAINING SCHOOL.

Since the establishment of the school at the naval hospital, Norfolk, Va., in 1902, thirteen classes of varying size, though approximating forty men each, have been graduated. No one can gainsay the importance of such an institution to the medical establishment in particular and the service in general, and even the Government benefits directly by reason of the increased efficiency of those who have had the advantage of its teaching. It is desired to increase the size of classes beyond the number it has been possible to spare thus far under existing circumstances and to extend the course of instruction over a period which shall make possible a closer approach to the high standard now required by the schools of nursing in civil hospitals. At present the term of instruction covers a period of four months, and while it is realized that this is entirely too short a time in which to accomplish anything like a thorough training, according to modern ideas, the difficulty encountered in securing a sufficient number of desirable men to supply service demands has made it impracticable to hold men in reserve for the course of instruction at this school except for the brief period indicated. Not only are the classes small, but it has been regrettably necessary on many occasions to withdraw several members of the class when in the very midst of their training, and at present the course has been temporarily abandoned on account of the great shortage in the Hospital Corps. The short and incomplete course of instruction possible, even in the presence of these conflicting conditions, is, however, productive of great benefit, and the Bureau is pleased to note the continued interest manifested in the success of the school by all medical officers and by others who come under the care of its graduates and the evident appreciation of its advantages by the apprentices under instruction. The instructors are deserving of great credit for the excellent results obtained. A regular military routine is daily observed out of school hours for disciplinary purposes, and the course of instruction, represented in the following roster of school work, was arranged with a view to the most advantageous employment of the time, and the disposition of subjects gives promise of largest returns:

Hour.	First month.	Second month.	Third month.	Fourth month.
9 a. m	Ward class	First aid	Clerical work	Materia medica and pharmacy.
10 a. m	Anatomy and physiology.	Bandaging	First aid	Operating-room work.
11 a. m	Hospital corps drill.	Hospital corps drill.	Hospital corps drill.	Hospital corps drill.
1 p. m	Nursing	Nursing	Study	Nursing.
2 p. m	Bandaging	Anatomy and physiology.	Nursing	General surgical nursing.
8 p. m	Hospital corps drill.	Materia medica and pharmacy.	Materia medica and pharmacy.	Hospital corps drill.

The physical welfare of the men under instruction has been carefully looked after, and free use of appliances provided for athletic exercises has been encouraged. One hundred and fifteen men, constituting three separate classes, have had the benefit of the course of systematic training the past year.

In view of the limited accommodations for school purposes available at the naval hospital, Norfolk, Va., particularly while undergoing the projected extensive alterations and repairs, and the need of all space for the proper care of sick inmates, and, moveover, in view of the contemplated and more comprehensive scheme of training to be instituted as soon as the exigency of the service will permit, it was considered advisable to select other quarters better adapted to the Bureau's aims. The opportune commissioning of the United States Medical School Hospital at this crisis placed the (old)

Washington Hospital at the disposal of the Bureau for other than exclusive hospital purposes, and it was therefore determined to transfer the training school to Washington and appropriate a portion of this building to its needs. The period of nominal recess seemed propitious for the change, and the building is now being refitted with the dual object of accommodating the overflow from the new hospital as well as for the training school establishment until such time as provision is made for the construction of a building for training-school purposes exclusively, on the present grounds of the United States Naval Medical School Hospital. When the school opens with the next class in the new quarters it is hoped that the extended course may be inaugurated and the plan of the Bureau carried out more effectively with fewer interruptions. This plan contemplates but two classes of five months' duration each year, which it is expected will give opportunity for more practical laboratory, bedside, and operating-room work in addition to the theoretical instruction and drills, and with the increased facilities at the new school building a larger class can be assembled in attendance, and ultimately all newly enlisted men in the Hospital Corps can be ordered to the school and prepared for the special duties of nursing before being scattered throughout the service. The source of supply should properly be the school and not the recruiting offices, as, until grounded in the elements of their chosen vocation, they are not capable of assuming its responsibilities.

The established policy of transferring men from the school to the various naval hospitals for further instruction and practical experience in the duties of nursing before assignments to duty on board ship will be strictly followed; but, in modification of this policy and as an equally efficacious, if not superior, substitute, when a hospital ship is commissioned, a certain proportion of the hospital corps men who have completed the course of drills and instruction will be sent to her and there guided in the practical application of their acquirements. The succeeding six months of training in the broader duties identified with hospital work ashore and at sea should effectually round out their preparation for the general naval service, and it is believed within this short period of one year that the recruits can be sufficiently grounded in the principles of nursing to insure, with further study and ever-added experience under varying circumstances and environments, final development along the line of their peculiar duties.

DRILL REGULATIONS.

A revision of the 1902 issue of "Drill Regulations for the Hospital Corps of the U. S. Navy" has been completed and is ready for distribution. The undertaking was committed to the direction of Medical Director J. C. Wise, U. S. Navy, who enlisted the services of Lieut. Commander D. L. Wilson, U. S. Navy, retired. By the preparation of this manual these two officers have accomplished a creditable and valuable work. It represents in part a compilation of regulations heretofore scattered beyond ready access in different official publications and combines all matter relating to the subject in a well-arranged and compendious form. Much new and original material has been incorporated, with such adaptations from the

Army as seemed desirable. The objects throughout have been to bring the manual up to date, to perfect the drill, to insure uniformity in the drill of the Hospital Corps ashore and afloat, and, in accordance with the present policy, to approximate both medical military services in form of drill as well as equipment, so that the Army and Navy may cooperate, as they should always be ready to do, in entire harmony of action. It is believed that the new manual of drill fulfills these desirable objects and that it will make for better discipline and greater efficiency in the conduct of medical department functions.

DENTISTS FOR THE NAVY.

During the past five years the Bureau has consistently and repeatedly submitted recommendations for legislative authority for the employment, under the control of the Bureau of Medicine and Surgery, of skilled dentists for service in the Navy, and the Department has as consistently approved and recommended favorable Congressional action. House bill No. 18722, Fifty-eighth Congress, and House bill No. 13654, Fifty-ninth Congress, both of which embodied the Department's views on the subject, were favorably reported by the Naval Committee, but failed of final consideration by the Committee of the Whole House and enactment, and the Bureau has thus from year to year been forced to the unsatisfactory expedient of utilizing for this purpose hospital stewards, hospital apprentices, first class, and hospital apprentices possessing dental ability. Not only is the system ineffective in accomplishing results and in meeting legitimate responsibilities, but such competent men as alone suffice to undertake the dental work of the service are not willing to remain in this anomalous position, nor is it just that they should be asked to serve in positions which are not commensurate to the standing of their profession.

That the services of skilled dentists are required by the Navy can not be questioned by those acquainted with the conditions and who know the far-reaching results of neglecting dental disorders. With the increase in the personnel the question of attention to the teeth of the enlisted men of the Navy is becoming more and more pressing each year, and there are few matters within the province of the medical officer that at times cause him more embarrassment.

Like the eyes, the teeth are coming properly to be regarded as intimately and widely associated with the various organs and functions of the body, and that defective teeth may be responsible for much ill health is recognized by all who keep in touch with the accumulating truths of medical science. The naval surgeon is alert to detect dental disorders early lest an aggravation of them produce grave illness. He, however, has not that special knowledge required to fit him to cope with diseased teeth in a final manner. He can and often does put in temporary fillings and treats the medical and surgical complications incident to dental disorders and often extracts such teeth as are not worth preserving, but naval surgeons are not expected to deal with dental disorders in a radical manner. The practice of dentistry requires a special education and training.

The teeth and the mouth are indubitably important factors in the causation of certain diseases of bacterial origin. This is not a hypothetical conclusion, for it has been proven beyond doubt that not only are bacteria found in great numbers in uncared for and neglected mouths, but their disease-producing properties are greatly increased, particularly in and about decayed teeth. Much of the tonsillitis and pharyngitis in the Navy can undoubtedly be traced to bad teeth, as can also deranged digestion and general physical deterioration. In this connection, it is not improbable that the teeth are an important contributory factor in tuberculosis by producing a state of lessened resistance to the disease by the constant absorption of poisonous matter.

In thus indicating the prominent reasons for the Navy's need of proper dental services, it may be added that a bad tooth may occasionally give rise to serious complications which may even endanger life. Surg. G. H. Barber reports from the U. S. S. *Baltimore:*

> While making a run between Singapore and Colombo, a death from pneumonia occurred. The patient had an ulcerated tooth, which was extracted at Singapore; this operation was followed almost immediately by the development of a diffuse cellulitis involving both sides of face and neck. Abcesses were promptly opened and drained, and the symptoms, both objective and subjective, had nearly disappeared, when pneumonia developed, and the man died thirty-six hours later.

Another fatality in the case of an enlisted man is reported, due to blood poisoning, which developed from gangrene of the nerve of a molar tooth and which might not have occurred had the man received timely experienced dental treatment.

The Bureau seeks to prevent accidents of this sort and to secure a reasonable conservation of the enlisted men's teeth by the timely employment of dental surgeons. It is believed that it would be a good general measure to have all recruits that are assembled at receiving ships and stations examined with a view to securing the highest physical efficiency in this respect before such men go to sea.

The amount of dental disease that exists in the Navy and the consequent treatment required by the enlisted personnel of the service is considerable. The reports from only two of the stations where dental treatment is being given under the circumstances above mentioned embrace some 4,631 cases of almost every character of dental work. This statement gives a fair idea of the Navy's need in regard to dental services, and often when it is impossible, even by makeshift provision, to meet such demands the cases are obliged to seek outside relief, probably of an indifferent character and at an expense beyond their means, besides entailing a great sacrifice of time and loss to the Government in services. At many of our stations and on our ships dental attention of more than the simplest character is not available, and the consequences are great suffering and disability and impairment of efficiency. In a reported instance so many of the ship's crew were in need of dental services that a dentist was engaged to visit the ship. In other instances, at stations where it seemed advisable, such arrangements could not be effected. Surg. W. H. Bell, writing from Camp Elliott, on the Isthmus of Panama, says:

> 'During February (1905) a problem presented which gave us considerable worry, as there appeared no immediate solution. It concerned some very necessary dental work which 35 or 40 of the command required to have done. Quarantine was then in force against Panama on account of yellow fever, and that fact, therefore, excluded us from the possibility of sending our men there for dental services, and as there was no dentist in Colon or anywhere else along the line the problem became a difficult one. We tried in vain to persuade

one or the other of the American dentists on the Isthmus to come to camp with his outfit, and the only other resort was a native dentist, whose work, as far as it came under our observation, was so inferior that we hesitated to employ his services, but even he finally would not come. It was an experience which forcibly indicated the need of dental surgeons in the service. The end of the whole matter was the detachment of most of the men without having received any but palliative treatment and their transfer to Santo Domingo, where their chance for needed attention was, if possible, worse.

This quotation is only one of many similar reports from the various naval stations and ships, and with reference to our extensive service in equatorial latitudes it is to be pointed out that teeth deteriorate with particular rapidity in the Tropics. The importance of having skilled dentistry within the reach of those on duty in the outlying and isolated stations is evident, and at the large stations where recruits are assembled and apprentices are trained the value to the service of such professional attention is of no less moment.

Dental surgeons are needed in the Navy quite as much as, if not more than, in the Army, which service enjoys free treatment by dentists employed in accordance with law, and it seems an unjust discrimination against the enlisted men of the Navy not to provide for similar dental work, especially in view of the universally recognized economic importance of sound teeth in military service.

A bill has been drafted and submitted, September 20, 1907, which embodies the views of the Bureau of Medicine and Surgery on this subject, and it is earnestly recommended that Congress be asked in its coming session to take favorable action on it. If its provisions become law, the requirements of the Navy in this respect will be satisfied.

WOMEN NURSES.

Intimately related to the proposed reorganization of the Hospital Corps of the Navy, with greater efficiency as the objective, is the question of the employment of women nurses as a part of the medical department of the United States Navy, eligible for service at naval hospitals, on board hospital ships, and for such special duty as the Surgeon-General of the Navy may deem necessary.

The desirability of this addition to our facilities for the efficient care of the sick and injured of the service has been made the subject of careful consideration from all points of view by the Bureau, and the oft-asserted merits of the proposed departure from long-established custom, which it entails, can no longer be viewed as merely problematical. The recent action of the New York Board of Charities and Correction adds force to this assertion. About two or three years ago Bellevue and allied hospitals (about five in number) put all nursing under the supervision of trained women. Formerly the pavilions for the treatment of insane or alcoholic patients were in charge of men. Now not only are women in charge, but they act as nurses for such patients, and the authorities report most satisfactory results from the change, the work being better, more humanely, and accurately done.

That women nurses are by natural endowment and special aptitude superior to male nurses for much of the duty required in the care of sick and injured men is generally admitted; that their employment is compatible and would not conflict with the conditions arising from the military character of our institutions may be inferred from the experience of the Army, which acknowledges their work as deserving of the warmest praise; and we have only to look back upon their record of splendid services in modern wars to be convinced of their adaptability to service conditions and of their efficiency in institutions under military control. Indeed, their importance in military service, as well as in civil life, has been amply and conclusively demonstrated and is now firmly established. Naval hospitals do not differ materially from civil hospitals, either in construction or routine, and the employment of women nurses in the one should bring as satisfactory results as in the other. As compared with the administration of our hospitals under present peace conditions, their advent would certainly insure a higher and much to be desired standard of efficiency in the care of inmates.

In our hospitals where the more difficult, lingering, and dangerous cases are treated it has been found, under existing circumstances, impossible to give all invalids the scientific and careful nursing which their particular illness needs, and women nurses would solve the problem and put it in our power to meet these obligations in a manner befitting the responsiblity and the time. Moreover, in addition to supplying more efficient medical and surgical nursing than is now obtainable, valuable services could be rendered by the trained women nurses in teaching the men of the Hospital Corps their special duties in caring for the sick, so that when they come to serve on board ship or at distant stations they will be prepared, with greater surety, to render services in accord with the best usages.

But it is in the event of war that the usefulness of women nurses would become most apparent. Then it would be necessary to have a larger number of male nurses available for duty at sea, and this under present conditions would be possible only by the enactment of legislative authority for the employment of women nurses. Aside from the fact that women nurses are actually needed now, it will not suffice to wait until the emergency of war arises and at the eleventh hour to make appeal for the necessary authority for their employment. Provision must be made now in view of present needs and against future possibilities. Such a corps as the proposed bill calls for, simple as it is, must have an organized nucleus, capable of easy expansion in response to increased needs, so that its members may become accustomed to service in the Navy and the naval hospital administration adjusted to them under the propitious circumstances of peace times. In connection with facility of expansion, it is important to remember that good male nurses are difficult to obtain, while good female nurses are usually available.

The plan of organization as previously detailed contemplates provisions similar to those for the Army, and was embodied in Senate bill No. 2207 of the Fifty-ninth Congress, first session. Briefly, it provided for "one superintendent of nurses, and as many chief nurses, nurses, and reserve nurses as may be needed." The number of such nurses would be determined by the requirements of the service from time to time. Under conditions of peace and in ordinary times the number would be comparatively small, employed chiefly on the more serious cases, and in times of war expansion to meet the extraordinary needs would be practicable. Of course the women nurses could have no place at sea except on hospital ships, but in the naval hospitals, where nine-tenths of the serious cases are treated, their peculiar fitness for work in wards and in the operating room makes their services most desirable. Furthermore, their presence here, as stated, would operate to release the major part of the men for assignment to necessary duty on our vessels of war and hospitals ships, where they would be urgently needed.

It is impossible to find adequate reason for the difficulty experienced in obtaining favorable Congressional consideration of such a meritorious measure of relief. Economy itself dictates this provision. The desirability of trained women nurses in the medical branch of the naval service has for five years been urged upon the Department, and, with its permission, upon Congress. The Bureau's representation of this measure, the importance of which it urges, has been persistent and forceful, and it has been explained how the lack of proper nursing means greater suffering. The officers and enlisted men enter the Navy with the assurance that they will be taken care of when disabled by disease or wound or injury. The Government supplies physicians and surgeons, splendidly equipped hospitals, and complete emergency facilities on every ship. The most serious omission in this excellent establishment is the want of that skilled nursing which civil institutions enjoy. The Bureau's hope and belief is that its work in the past five years will, during the coming Congress, bear fruit, and that within the next year there will be provided not only a well-equipped and properly established hospital corps and a corps of dental surgeons, but a corps of women nurses.

The Senate bill above referred to, and which had the approval of the Department, unfortunately failed to receive the necessary legislative action, and consideration of the benefits to be derived through the passage of a law of this character was withheld. Therefore, with the best interests of the service and the individual at heart, the Bureau again renews its recommendation that legislative authority be sought during the pending session of the Sixtieth Congress for the employment of trained women nurses in the United States Navy.

NAVAL MILITIAS.

Looking to the establishment and the continuance of a closer relation with the naval militia organizations of the several States, and with a view to having a reserve of surgeons more or less trained to naval service conditions for purposes of Medical Department expansion in the case of national need, the Bureau, in the past year, has made a successful effort, within the possibilities of the law, to get in touch with the different medical officers of the naval militia organizations.

During the month of August, 1906, the several naval reserve ships on the lakes assembled at South Manitou Island, in Lake Michigan, for maneuvers under the direction of the U. S. S. *Wolverine*. In addition to the *Wolverine*, the ships engaged were the *Hawk* and *Essex*, Ohio Naval Reserve; *Yantic*, Michigan Naval Reserve; *Gopher*, Minnesota Naval Reserve, and *Dorothea*, Illinois Naval Reserve. The medical officer of the U. S. S. *Wolverine*, Surg. A. G. Grunwell, U. S. Navy, submitted a special report dealing with the sanitary conditions of these ships and items of medical and surgical interest connected with these maneuvers, and his conclusions and recommendations bear directly upon the Bureau's aims. He says in part:

> The medical officers of these ships were without exception capable men, zealous in their duties, but showing in most cases a lack of uniformity in the performance of them on board ship and an ignorance of service methods. This was to be expected, and it is surprising that they did so well, considering that each medical officer is entirely isolated and has to rely on his own ingenuity and his own interpretation of the medical rules of the Navy. As these gentlemen, in time of war, would be in a position to render valuable aid to the medical corps, especially in its present shorthanded condition, it is my opinion that something should be done to aid them in acquiring the necessary knowledge of service conditions, in order that in time of need a body of trained surgeons would be immediately available, thus avoiding the many deplorable incidents which are apt to accompany the "breaking in" of new men. This, it is believed, could be accomplished by supplying each of them with a copy of the "Medical Instructions" and by offering them the advantage of a course of instruction at the United States Naval Medical School, where they could be brought into closer touch with the medical service of the Navy.

For fifteen years or more the Department has had an appropriation under the Bureau of Ordnance for arming and equipping the naval militias of the several States, under regulations prescribed by the Secretary of the Navy. This appropriation has been increased from time to time, and for the fiscal year 1908 is $60,000. It provides for arming and equipping naval militias—for arms, accouterments, signal outfits, boats and their equipment, repairs to vessels loaned to States in accordance with law, fuel, clothing, and the printing or purchase of necessary books of instruction for the naval militias of the various States—under such regulations as the Secretary of the Navy may prescribe.

This appropriation makes no provision for supplying the naval militias with medical stores, surgical instruments, dressings, etc., and it is recommended that the words "Medical supplies" be inserted in the next estimates submitted to Congress. This Bureau has cooperated, so far as has been practicable within the limits set by the appropriation act, with the militias of the several States. Medical journals and forms of the Bureau used in the examination of recruits for enlistment, in making reports to the Bureau, and in preserving statistics of health, and literature giving information concerning the broad duties and interests of the Medical Department of the Navy, have been furnished, including, as authorized by the act of appropriation, the issue of the Book of Instructions for Medical Officers of the United States Navy to all medical officers of the naval militias.

The Bureau has several applications from medical officers of the naval militias for the privilege of attending the Naval Medical School. Under the law medical officers of the national guard are permitted to attend the Army Medical School, and during such attendance are allowed certain emoluments.

It is recommended that the privilege of attendance at the Naval Medical School be extended to officers of the naval militias under the same conditions, and with the same emoluments, as is now enjoyed by right of law by the medical officers of the national guard. This law is to be found in section 16 of the act of Congress approved January 21, 1903, and regulations governing the attendance of medical officers, as announced by direction of the President, are contained in General Orders 139, War Department, Washington, August 17, 1905.

INTERNATIONAL MEDICAL SERVICE.

Upon the receipt of the news on January 16, 1907, of the earthquake disaster that had visited the city of Kingston, Jamaica, the commander in chief of the Atlantic Fleet, then at Guantanamo, Cuba, detached a portion of his command and sent it to the relief of the stricken city. As the first call from Kingston had specified the immediate need of surgical aid, the destroyer *Whipple* was dispatched in advance with the fleet surgeon, H. E. Ames, and Assistant Surgeon McDonnell, who took such surgical supplies as could be assembled without delay.

The *Whipple* arrived at Kingston about midnight of the same day and steps were immediately taken to learn something of the situation, to ascertain the needs and get in touch with the work of relieving the sufferers. The authorities were advised of the prospective early arrival of our ships with additional medical officers, and a proffer of the assistance of all, together with abundant surgical supplies, was made. The latter alone were accepted at the hospital, where operations and dressings were being conducted by the civil doctors, and the services of our surgeons already there, and those arriving in Admiral C. H. Davis's squadron at 7.30 a. m. on the 17th were thus, for the time, limited to field work. Their efforts were directed toward the relief of the wounded scattered about the parks and open spaces who had not been able to obtain relief at the city hospitals.

Later the offer of a building and grounds, the property of the American Jesuit Fathers, situated in Winchester Park, was accepted as an emergency hospital for our own use. The building and premises were rapidly put in shape, and before noon of the second day a fully equipped emergency hospital was in operation under the United States and Red Cross flags, and cases were being attended to as rapidly as possible. The report of the fleet surgeon and those of his subordinates all show the urgent need of establishing such a hospital and the great importance of the work they were able to accomplish by this means. In commenting upon his inspection the second day, Admiral Davis writes: "Everything about the hospital was in beautiful order, operations in progress, many patients awaiting attention, and more coming in constantly." This relief work of the surgeons continued until 1 o'clock on the 19th, at which time they reembarked under orders, but, on leaving, sufficient surgical and medical supplies for immediate use were left with the Jesuit Fathers. It was with the greatest regret that the work was relinquished and evidence of the deepest gratitude for the aid rendered was apparent on all sides.

A conservative estimate of the number injured placed the total at about 1,500. Many of these were still unattended when our ships withdrew; however, during the days and nights in the short period between the arrival and withdrawal of the squadron much was accomplished, for at the improvised hospital alone over one hundred cases of varying severity were treated from 10 a. m. on the 18th to 1.30 p. m. on the 19th.

The records are incomplete, both as to the number of cases and their individual characters, owing to the great number of patients and the rapidity with which they appeared, but the list of injuries included all forms, viz, fractures, dislocations, burns, abrasions, lacerated and contused wounds, etc. These were in nearly every instance several days old, ill-smelling, badly infected, and septic, and most of them were serious from their extent or as regards the part of the body involved. The surgical work was, in every instance, carefully and well performed and, taking into consideration the disadvantageous circumstances under which the surgeons labored, the results reflect great credit upon the medical officers concerned. In this connection Admiral Davis says:

> I can not speak without emotion of the work of our surgeons, headed by the fleet surgeon, H. E. Ames. The greatest physical strain and mental distress fell to their share. Their untiring devotion and energy saved many lives. Most of the good was effected by them. They have my sincere thanks.

While the U. S. S. *Paducah* and the U. S. S. *Marietta* were serving in Honduranian waters (May, 1907) for the protection of American interests during the late hostile uprising in Central American countries, the medical officers of these two ships were engaged actively in the solution of health problems in the towns of Cieba and Puerto Cortez. The ubiquitous mosquito, and the presence in such large numbers of those species identified both with malaria and yellow fever; the presence of the former disease and the recent devastating epidemic of the latter; the generally poor sanitary condition of the towns, all prompted steps toward the institution of broad sanitary measures. At the suggestion of Commander A. G. Winterhalter, commanding the *Paducah*, and by the authority represented in the commander in chief of the Nicaraguan forces, Gen. Juan J. Estrada, a board of health was organized and given power to act. This board was composed of Doctor Austin, long resident in Honduras; Doctor Ames, of the Public Health and Marine-Hospital Service; Doctor Lopez, the surgeon in chief of the Nicaraguan forces; Doctor Carter, the surgeon of the port; Doctor Mayers and Doctor De Bruler, medical officers of the *Marietta* and *Paducah*, respectively.

The energies of this board were directed toward sanitary education, through widely distributed printed circulars; the formulation of a sanitary scheme and the direction of the work involved; the treatment of the sick among the native inhabitants of the towns and the Nicaraguan soldiers, and the general administration of prophylactic medication against malaria. This latter practice required the use of large quantities of quinine, supplied by the two United States ships, but the measure was followed, it is believed, by more than usual success and the results warranted the expenditure.

Much was accomplished in improving the condition of the towns named and a great deal of suffering was relieved and prevented. The wounded did not come under the observation of our surgeons, so that the services rendered were limited entirely to sanitary improvement and medical relief.

During the past summer medical hospitality was offered to the sick of the foreign naval ships visiting this country as invited guests at the Jamestown Exposition. One German, a member of the crew of His Imperial Majesty's cruiser *Roon*, and 30 Brazilians from the cruisers *Barrozo* and *Riachuelo*, and 1 Chilean from the cruiser *Ministro Zenteno* were received and treated in the United States naval hospital, Norfolk, Va. These cases included rheumatism, influenza, adenitis, cystitis, typhoid fever, pleurisy, and beriberi. All did well except two, who died of the latter disease. Some were returned to their ships, and the remainder, 16 in number, when they had recovered, were delivered into the custody of the Brazilian consul. One Brazilian absented himself without leave and was discharged from the hospital as an absentee, his name and effects being delivered to the consul. One Chilean, a fireman from the cruiser *Ministro Zenteno*, suffering with heart disease, was admitted and treated in the United States naval hospital, Newport, R. I. This man died and was buried in the Newport Common Cemetery, Newport, R. I. One Brazilian is still under treatment at the naval hospital, New York, and will be delivered to the Brazilian consul when in condition to be sent home.

RECRUITING.

The extreme importance of the examination of recruits for the service and the necessity of exercising the utmost care in the performance of this duty is appreciated, yet for several years the Bureau has found it impossible to comply with the ideal requirements as regards experienced medical examiners or to secure, through a citation of defective provisions and the recommendation of remedial measures, the surroundings and conditions properly adapted to secure the best results. The unavoidable employment of acting assistant surgeons who are not fully trained in service requirements; the usual unsuitableness of the quarters in point of noise and arrangement in which the examinations are conducted, especially those occupied by the traveling recruiting parties; the urgent need of the service for men, creating an overzealous effort to make the maximum number of enlistments, and the pressure to finish the number of candidates presenting for examination at one place in the time allotted before leaving for the next, as advertised, resulting in hasty and imperfect work, all operate to lower the standard of physical requirement and to defeat at the very foundation those interests which should be sedulously served, viz, the efficiency of the personnel and the protection of the Government against undeserving additions to the pension list.

However, in spite of the existing unfavorable conditions under which many of the recruiting officers must execute their work, the medical officers who have been engaged in the physical examination of men for enlistment in the Navy, at the various places where such examinations are held, have performed this duty in a highly satisfactory manner. Indeed, considering the very large number of men enlisted there have been received in the Bureau comparatively few reports of medical surveys for physical defects which existed prior to enlistment.

Nevertheless, evidence is not wanting that physical ineligibles do find their way into the Navy, and a word of warning and advice to those primarily responsible for the maintenance of a vigorous naval personnel need not be amiss. They must not only exact freedom from disease in candidates for enlistment, but require, with unfailing consistency and unrelenting fidelity to service needs, that the physically debilitated and undeveloped are not received into the service. In this connection the prospective duty of the applicant within admissible limits should be borne in mind, due weight being given to probable susceptibility to disease influences, and the inevitable demands upon endurance, particularly in those of the engineer force or on torpedo-boat service. They can not be too cautious that the examination is conducted faultlessly, and, in finally passing upon a candidate, conclusions as to fitness or unfitness must be reached with professional consideration and intelligent discrimination. A compromise with the established physical standard can result only in a poor return to the Government, i. e., inadequate service, primarily, with great loss of time and great expense and embarrassment to the naval service in the end. The primary causes for rejection as laid down in the regulations were compiled after prolonged and careful study, and they should not be lightly regarded.

The Bureau regrets that, owing to the large number of vacancies and the consequent great shortage in the Medical Corps, it has not been able to detail more medical officers for duty in connection with recruiting for the Marine Corps and that the required examinations have had to be conducted by civilian physicians. This procedure has not been entirely satisfactory.

With a view, therefore, to replacing Tripler's Manual, heretofore employed as a guide to the physical standard for the Marine Corps, and in a measure abridging the dangers to which such dependence exposes the service, the Bureau has recently prepared and issued a booklet containing extracts from the United States Navy Regulations and Book of Instructions for Medical Officers, relating to the physical examination of candidates for enlistment in the United States Navy and United States Marine Corps. This booklet has been distributed to the medical officers of the Navy and, through the Brigadier-General Commandant, United States Marine Corps, to the civilian examiners at the rendezvous, stations, and ships where physical examinations are conducted. It is hoped that by thus providing a single uniform standard of physical requirement we may reduce the disadvantages under which marine recruiting officers labor and accomplish a diminution in the now too numerous medical surveys in that corps.

The system of finger-print identification, now broadly known and of recognized value, was inaugurated by the Navy during the past fiscal year. Each man enlisting since January 1, 1907, has had his finger-print record completed under the supervision of the medical examiners at the time of his physical examination. The system is based upon scientific principles and mathematically accurate, furnishing an apparently infallible method of identification. Its value to this Bureau as an aid in effectually safeguarding the physical efficiency of the Navy and protecting the Government from unjust pension claims, has already been demonstrated, as by means of the identification records on file in the Department it has been found possible to recognize those who have reenlisted after having left the service for physical causes which rendered their retention undesirable. When the system was adopted a hospital steward, who had been previously instructed, through the courtesy of the Military Secretary of the Army, General Ainsworth, was sent to all recruiting stations to teach the method of taking the impression. The value of the records depends upon the clearness and the correct location of the prints, which in turn depend upon some knowledge of the information which they are expected to reveal, and it was important that in the beginning there should be a proper understanding of the system. Members of the Hospital Corps soon grasped the idea, and the records submitted are found satisfactory in all respects. Following its adoption by the Navy, the teaching of the system was immediately given a permanent place in the curriculum of the United States Naval Medical School and its principles and the manner of making the records are carefully taught to all medical officers coming under instruction at that institution. It is contemplated, also, to add this subject to those included in the course of instruction at the Hospital Corps Training School.

MEDICAL REPRESENTATION ON BOARD OF INSPECTION AND GENERAL BOARD.

So important and far-reaching have the duties of these boards become that it seems impossible that the just claims of the Medical Department to representation in their studies, deliberations, and recommendations can longer be ignored. In the reports of 1902, 1903, 1904, and 1905, the Bureau requested the Department's consideration of the subject of assigning a medical officer as a member of these boards, and it is believed that only good will come from such an addition to their constituent organization. If its advisability and expediency is a question, it is one at least which merits serious thought and should not be thrown aside without good and sufficient reason. The time has long passed when the duties of a medical officer can be exclusively confined to the care of sick and injured. The advance in medical science has extended the scope of the medical officer's legitimate responsibilities, and established the sanitarian feature of his professional life as representing an important function. This is an age of prophylaxis, and nowhere has this intelligent tendency a more valuable place than in the Navy where the conservation of physical efficiency is so vitally involved. Preparedness among the living, combative element of the Navy, is quite as important as preparedness in material strength. The very nature of the duties of these boards requires the consideration of matters involving problems of sanitary import, which may and often do have a very far-reaching and serious bearing upon the health and welfare of the personnel of the service, including as they do questions connected with the development of naval stations, sanitary inspection, quarters for the personnel, ventilation, food supply best adapted to climate, water supply, effects of climate, clothing, location of hospitals, medical department functions in battle, hospital ships, recruiting, and other allied matters ashore and afloat. Manifestly there is need for a medical officer on these boards, who, by professional training and experience, is qualified to give useful technical counsel in the innumerable sanitary and hygienic problems which enter into naval expansion.

The Bureau invites attention to the constitution of the General Staff of the Army, as an earnest of the validity of its contention that there is opportunity for the employment of a medical member on these boards, and to the position conferred upon Col. W. C. Gorgas, Medical Department, U. S. Army, in connection with the Isthmian Canal Commission, as evidence of the recognition of the important service which a medical officer can render.

The presence of an experienced sanitarian, the Bureau is convinced, would make entirely for the best interests of the service and for economy in administration. It is, therefore, earnestly recommended that the appeal for Medical Department representation on each of these boards be accorded consideration and action.

BARRACK BUILDINGS, ETC., FOR RECRUITS AND THE CREWS OF SHIPS, UNDERGOING EXTENSIVE REPAIRS.

The continued activity in recruiting and the rapid increase in the Navy with the consequent accumulation of large numbers of men at the several training stations and rendezvous, where men are sent preliminary to assignment to the vessels of the fleet, emphasizes the need for the renewal of the Bureau's repeated recommendation that better and more ample provision be made for housing the enlisted force of the Navy during its period of detention on shore. It has been pointed out in preceding reports that the old wooden vessels used as receiving ships have all the sanitary disadvantages incident to limited capacity, to long habitation, to structural defects, and to the decay of old age, and even those of more modern type sometimes employed for the purpose are equally undesirable in point of capacity, if from no other point of view.

The experience of the past few years should have taught the necessity of receiving the raw recruits of the Navy with more enlightened provisions than are represented by the accommodations at present available. Not only does the continued employment of these receiving ships evidence a neglect of the sanitary demands of the time. and a disregard of the plain and notable lessons brought home as a result of these improper provisions, but such quarters are not susceptible of the necessary expansion, and even the temporary barracks erected at the St. Helena Reservation and at the League Island Navy-Yard, as expedients to accommodate the overflow, have not proved sufficient. Housing facilities for recruits have not kept pace with the growing needs of the service, and the danger of overcrowding has been frequently illustrated.

The inadequacy of receiving ships and supplementary barracks for the requirements of the present naval establishment is strikingly apparent now in time of peace, but it would be dangerous and embarrassing to a degree in the event of war and would certainly constitute a serious element of weakness on the occasion of emergency expansion. It is the Bureau's opinion that the Department can not afford any lack of foresight in this important matter, and the obligation of naval authorities as regards the protection of the recruit from debilitating and disease influences as well as the maintenance of the highest physical efficiency of the personnel should stimulate a liberal and wise anticipation of actual needs. In this way only, as has been abundantly demonstrated by every establishment concerned in the handling of large numbers of men, can the Navy fortify itself against needless expense, delay, and loss. and avert possible disaster at critical periods.

The significance of affections and diseases of the respiratory organs at the various stations where recruits are detained for training, only serves to indicate that the erection of barracks, so long contemplated and repeatedly recommended by this Bureau and the Bureau of Navigation, has been too long delayed.

In direct relation to the need of barracks at the rendezvous the conclusion has been forced upon this Bureau that somewhat similar quarters are necessary for a large part of the crews of ships that are either undergoing extensive repairs or in the process of completion at our various navy-yards. Surg. L. W. Curtis points out that under such circumstances there is a protracted period of progressive lapse from cleanliness in ship and personnel, particularly among untrained recruits and in cold weather. There are large numbers of yard employees moving throughout the ship daily who are careless in their personal habits; dirt is tracked in and blown on board, and no adequate means are available for meeting these adverse sanitary conditions. This is not a state of affairs peculiar to any one ship, but pertains to all ships so placed, and, although as a rule no pains are spared by the commanding and other officers to mitigate a necessary consequence of such circumstances, it is impossible to even sufficiently overcome them. Moreover, ships at the yards, particularly the New York Navy-Yard, float in water highly polluted by sewage, which renders it absolutely unfit for use about the ship except for flushing the head, yet by yard regulation it is required to be used for washing down the upper decks, for scrubbing canvas (including hammocks), and is the only supply for the crew's showers, which constitute the general baths of the ship's company. That ships' sanitation is impaired throughout the fleet and the health of the personnel lowered by periodical subjection to these conditions admits of no question.

Ships of war, as habitations, by reason of their crowded condition and structural intricacies, as compared with shore dwellings, are highly susceptible to disease infection when removed from the environment of pure ocean wind and water; and for the same reasons are not easily freed from materies morbi when once a lodgment has been made. Cruising that involves radical climatic change may prevent epidemics and suppress all active manifestation of them for the time, but nothing short of evacuating the ship and a thorough sanitary renovation can be depended upon to discharge the more resistant morbific agencies when they have been permitted to gain a footing.

Nothing impairs efficiency and destroys contentment more in a fighting force than conditions depressing to physical tone, buoyant health in man being as important a factor as high power in the gun. The most complete and effective measure for the prevention of ship and crew infection at navy-yards, where, on the whole, under present conditions, the Navy is most exposed to unwholesome living conditions, would be the erection of barracks, where crews could be housed and subsisted and their toilet requirements met while repairs to the ship are going on. This would prevent contact with the yard workmen, who, doubtless, are sources of occasional infection, and permit the thorough cleaning of the ship when all work was completed and before reembarking the crew. Less effective for the accomplishment of this end would be the construction of baths with arrangement for scrubbing clothes and bedding, that the men might be kept in a condition of normal cleanliness, such as pertains to ships at sea, but the construction of barracks could embrace these provisions and would, moreover, meet all other requirements. The urgent need of reform in this matter is respectfully submitted. Considering the tremendous interests at stake such phophylaxis would certainly mean economy from a broad business standpoint, and any compromise with reasonable expense would defeat such results. In recommending the construction of barracks for naval purposes the Bureau wishes to be understood as having in mind only buildings planned and erected by those familiar with the architectural requirements of structures of this character, and in the construction of which every care is taken to work out the problems of ventilation, lighting, heating, bathing, plumbing, and sewerage. A disinfecting room and sterilizing plant should be included in the plans for such barracks; and an incinerator or crematory for disposing of the enormous quantity of garbage which daily accumulates should also be established at some suitable and convenient place in each navy-yard.

ADVISORY FUNCTION OF BUREAU.

The Bureau wishes to express its appreciation of the unfailing courtesy and willing cooperation which has marked its intercourse with the other Bureaus of the Department during the past year. These cordial relations have enhanced, as they could not fail to do, the smooth and efficient prosecution of the business of the Medical Department. The Bureau of Navigation has given material assistance in matters connected with personnel and ships, etc.; the Bureau of Yards and Docks has given valuable advice and prepared many plans and specifications, incident to repairs and the construction of new buildings; and the Bureau of Construction and Repair has shown a uniform consideration of the aims of this Bureau in referring plans of all proposed changes in ships and new construction, as regards the sick quarters, to this Bureau for comment and recommendation, and has at all times manifested a willingness to accept suggestions.

The advisory function of the Bureau has, by virtue of these pleasant relations been simplified and rewarded with excellent results, but there is need of enlarging this function, particularly as regards the sanitary features of proposed ships and barracks. Material defects in some of our completed vessels, seriously affecting their healthfulness, continue to be noted, as in the past, too late to be corrected without considerable expenditure of money and loss of time from active duty. In all matters pertaining to ventilation, sewerage, allotment of berthing space and lavatories, which are of vital importance to the living combative element, medical officers are qualified to advise, and the most appropriate time to secure benefit from such consultation is before work has progressed so far as to make it impracticable to admit of changes. It is, therefore, recommended that the scope of the advisory function of the Bureau be extended to include these features of ship construction. With reference to barrack buildings, furthermore, it is recommended that in the preparation of plans, in the choice of sites, and in all matters pertaining to sanitary problems of such construction the advice of medical officers be utilized. Inasmuch as these officers are called upon to furnish remedies for faulty hygiene and sanitation, it would seem only reasonable that they be given an opportunity to make such suggestions as would tend to prevent the inception of those conditions and diseases which are dependent upon defects of construction and the selection of insanitary sites.

REORGANIZATION OF THE BUREAU.

The increasing duties of the Medical Department consequent upon the growth of the Navy and the congested condition of the Bureau's offices, which in the past has impeded efficient operation and was an offense against sanitary requirements, have for several years indicated the urgent necessity for reorganization. Plans to this end were formulated and prepared pending a propitious time to effect the change, and the difficulty experienced in smoothly accomplishing the business of each day acted to keep the purpose in mind. However, it was not until the present year that the Bureau was able to realize its wishes in this respect.

The demands of modern medical standards made an improvement in our dispensary service imperative, and this was met by the construction of the United States Naval Medical School Hospital. It must be conceded that a hospital is the most desirable and the most normal location for a dispensary service, and in this new building, therefore, special accommodations were made for the execution of the work involved, and as soon as possible after it was placed in commission the United States naval dispensary was, as regards its more important work, removed from the Mills Building to its new quarters, leaving only necessary dispensary provisions for the proper response to emergency calls.

By means of this change needed space was made available for the overflow in the contemplated rearrangement of the Bureau and the relief of the existing overcrowded condition of the offices in the State, War, and Navy Departments building. The record and pension division of the Bureau was transferred to the rooms thus vacated in the Mills Building, and the officer in charge of this division assumed in addition the work of the emergency dispensary. The furnishing of the rooms to be used by the record and pension division was completed prior to their occupancy, and the transfer was accomplished without material interruption of the business of that office.

The remaining divisions of the Bureau were better accommodated by the additional space, and in their rearrangement each was definitely separated, both in location and the pursuit of its particular work. As at present constituted, the Bureau embraces four divisions, exclusive of the office of the Surgeon-General. The first division, known as the administrative division, includes the office of the assistant to Bureau and the chief clerk and is concerned with the general business of the Bureau, files, records, property surveys, general orders, mails, etc. The second division, which is known as the personnel and statistical division, is concerned with the compilation of the Surgeon-General's Report, the editing of the United States Naval Medical Bulletin, literary and legislative matters, Hospital Corps records and files, medical officers' records and files, and statistics and plans. The third division is known as the division of supplies and accounts, and is concerned with the finances of the Bureau and equipment of all sorts. The fourth division, known as the division of records and pensions, is concerned with the personnel surveys, pension claims, and all information concerning the medical records of the personnel of the Navy.

In accomplishing the rearrangement above indicated much useless shelving was torn down and the offices renovated and placed in a thorough sanitary condition. It is believed that the reorganization will secure a more expeditious transaction of business, while at the same time perfecting the administrative coordination, and will make for desirable efficiency in every direction.

In this connection, and with the highest efficiency of the operations of the Bureau as an objective, it would seem desirable that the officers in charge of each division of the Bureau's work be designated as authorized assistants to the Bureau, and in conformity with that title and its intended responsibility, be empowered, by direction of the Surgeon-General, to sign such routine mail concerning the business of their respective divisions as would insure the utmost dispatch in the transaction of Bureau work.

THE JAMESTOWN EXPOSITION.

The allotment of $1,000 to this Bureau out of the Department's share of the appropriation for exhibits at the Jamestown Exposition was utilized, it is believed, to the best advantage. When the proposition of an exhibit by the Bureau of Medicine and Surgery was first suggested, several interesting possibilities in the shape of what would constitute an appropriate exhibit were discussed, including one of an historical and pictorial nature and another which might show the work and equipment of the Medical Department. However, a more careful estimate of the assigned space demonstrated the impracticability of these and determined the decision to utilize the opportunity to show the educational advantages offered by the Medical Department of the United States Navy. This seemed the best plan and was in keeping with the spirit of the age. The general character of the naval exhibit was to be that of models, and in conformity thereto a model of the United States Naval Medical School establishment, as it stands to-day and as planned for the future, was executed under the direction of this Bureau and safely installed at the Jamestown Exposition. It is a most satisfactory production and depicts an institution in process of evolution, which will properly inspire the pride, not only of the Medical Corps but of the whole naval service.

TUBERCULOSIS IN THE UNITED STATES NAVY.

In the history of the Medical Department up to the year 1902, all diseases of a tubercular character in the United States Navy were cared for without regard to climatic requirements and other special environments at our various established hospitals. Such cases were given every consideration, within the existing possibilities, according to the advanced and accepted ideas of the time. But however gratifying the results may have been under these circumstances, the necessity of combining the treatment of tubercular patients with that of other patients in a general hospital could only be deplored, and the best results could never be obtained under such conditions. The need of some provision for the segregative treatment of this class of cases was becoming increasingly apparent. The successful treatment of this insidious disease demanded, not only segregation, but also the open-air treatment which had come to be considered essential, if even an approach to cure was to be made. The welfare of those inmates suffering with other diseases demanded their separation. for both moral and physical reasons, from the presence of those afflicted with tuberculosis. Thus the recognition of the most ordinary need, and our available resources for the care of these unfortunates, were clearly at variance, and the only alternative was to survey tubercular patients and discharge them when in a condition to return to their homes. Very often, little, if any, money was due such patients when discharged, and before they could get their pensions they were often in want and dependent upon charity, and a menace to the health of any community in which they might settle, unless received in some civil establishment for the treatment of tuberculosis. These institutions naturally thought it an imposition to be compelled to care for cases which had originated in the naval service and this outcome reflected discredit upon the Navy. It was our duty, if possible, to remedy this, to redeem our reputation, and recognize the obligation to care for our own cases of tuberculosis.

In spite of all that the Medical Department was able to do, its record in the management of tuberculosis was not entirely creditable and in the report of this Bureau for 1902 attention was called to this subject.

Early in the year 1902 permission was asked to enter patients desiring it, at Fort Bayard, and in consequence, during this year the Navy was, and has since been, permitted through the courtesy of the War Department, to send a few special cases of tubercular disease in officers and enlisted men of the Navy to this sanitorium, but its capacity was limited, and the Bureau would have given many more patients this opportunity for improvement and cure if the army hospital could have accommodated them. It was wrong in principle and an injustice in practice that the tubercular sick of the Navy should not have all the advantages which were given to the tubercular sick of a similar branch of a Government service, and that the benefit of sanitorium treatment should be made dependent upon a variable and uncertain means of accommodation. There were many afflicted with tuberculosis contracted in service who were entitled to a chance for their lives at the Government's expense.

A reference to the accompanying table will show a steady increase in ratio of such cases per 1,000 up to 1902, and in that year, although a drop in the ratio is recorded, there were, nevertheless, 145 cases admitted for treatment, 22 of which were, in the latter part of that year (November), still under treatment at our various hospitals, as follows:

Portsmouth	1	Chelsea	3
New York	2	Philadelphia	1
Washington	4	Norfolk	3
Pensacola	2	Mare Island	3

The matter had become so urgent, that, in December 1, 1902, the Bureau addressed the honorable Secretary of the Navy requesting that the approval of the honorable Secretary of War be obtained to ask Congress to make an appropriation sufficient to enlarge the hospital at Fort Bayard so as to accommodate the tubercular of both services, and to enact a law providing for the government of that institution and the admission of naval patients under the same general rules as were then in force at the Army and Navy General

Hospital, Hot Springs, Ark. The idea was that the Navy Department should cooperate with the Army in seeking an appropriation and that the provisions for the appropriations be inserted at the proper place in the act making appropriation for the support of the Army for the ensuing fiscal year. The institution was to remain under the control of the honorable Secretary of War, but as in the case of the Army and Navy General Hospital, Hot Springs, Ark., its title was to be changed to the Army and Navy General Hospital, Fort Bayard, N. Mex. The proposition met with the approval of all concerned, and the Secretary of the Navy addressed the Hon. George Edmund Foss, chairman of the Committee on Naval Affairs, on the desirability of the provision, with respect to which the medical authorities of the Army and Navy agreed and transmitted a clause with an urgent appeal for early action. The matter failed of fruitful consideration, however, leaving us in the same lamentable position in relation to tuberculosis in the Navy, and making it necessary to seek for some other temporary measure which would meet the service needs until proper specific provision could be made.

All the hospitals continued to care for the cases of tuberculosis of the service, but the majority of those not sent to Fort Bayard were treated at Pensacola, as the most favorable available location.

Reference to this subject was made in the report of the Bureau for 1903.

In November of 1903, the tubercular sick of the Navy having greatly increased, and in lieu of other provisions for their more satisfactory treatment, an experimental camp for tubercular patients was established at Pensacola within the limits of the hospital grounds. Forty-four cases were treated there from the date of its establishment up to May 30, 1904, and the showing was satisfactory, although the treatment was carried on under great disadvantages, there being no administrative facilities, and the climate was not all that is to be desired for such cases. Moreover, the results were rendered less positive from the fact that treatment was not carried on in a separate institution and that sanitary arrangements were inefficient. Indeed, the camp was a makeshift at best, showing, however, the possibilities in the treatment of this disease at or near sea level. In February of 1904 the Bureau, learning that the Port Royal Naval Station was to be abolished and finding that there were at that station adaptable buildings and many other conveniences suitable to the purpose, sought permission to use Port Royal for sanatorium purposes. The Bureau had carefully considered the advantages and disadvantages of establishing a camp there and, although it was far from offering the ideal solution of the problem, it was believed that with the facilities and climate which this station offered the care of the cases already in the service and the study of the disease could be very satisfactorily carried on there. The welfare of the patients could, at least, be better conserved than was possible under existing conditions.

The facts were clearly presented to the Department, but no action was taken in the matter. Forced back upon the primitive resources at the Bureau's command, and with a disposition to make the best of a bad situation and meet the needs, redoubled efforts were made to equip the Pensacola camp and make it more nearly fit for the care of these unfortunate sick. At this time the tubercular sick of the Service were distributed as follows:

Cavite	2
Chelsea	1
Mare Island	12
New York	6
Norfolk	3
Pensacola	23
Philadelphia	1
San Juan	5
Washington	1
Yokohama	1
Fort Bayard	47
Total	102

Comment upon this subject was again made in the Bureau's report for 1904.

As previously stated, the capacity of the tuberculosis camp at Pensacola had reached its limit, which was far short of the number of cases requiring treatment. During the year from May 30, 1904, to May 30, 1905, 110 cases were treated there and Fort Bayard continued to care for a considerable number. Other cases were given asylum, as heretofore, in the several naval hospitals, but the resources at the disposition of the Bureau for this class of cases were taxed to the utmost, and as time passed it became necessary to make additional special temporary provision. The greatest number of cases in any one place exclusive of Pensacola and Fort Bayard were located at Mare Island, and here, by virtue of mere exigency and at the initiative of the commanding officer of the hospital, a camp was developed as an annex to the hospital proper. In the year 1905 56 cases were treated there. The evolution of similar camps in connection with all of our hospitals was brought about as necessity dictated and extra provision so made that the Bureau might with some credit tide over the trying period through which it was passing and until Congress could be induced to make appropriation for the construction of a special sanatorium.

In spite of the Bureau's untiring and unfaltering efforts to secure the most ordinary provisions in the light of modern requirements, and in spite of the ingenuity exercised, the facilities for the care of the tubercular sick of the Navy were still very inadequate. The results, however, were not bad, considering the unfavorable conditions contended with, but they never were and never could be entirely satisfactory with the means then available. The matter was again commented upon in the Bureau's report for 1905.

Throughout all these years the Bureau never lost sight of its aim or abandoned the hope that the service would possess an ideal sanatorium for the proper care of the tubercular sick. That such an institution would eventually be established was considered inevitable, and with the best interests of the service and of the unfortunate victims of tuberculosis at heart the Bureau continued to urge the matter with unabated vigor. The question of suitable available sites was being investigated, and early in 1906 an officer was designated for the special duty of visiting different localities in this country for the purpose of ascertaining the best site for a naval sanatorium. This matter was gone into very thoroughly, and Surg. J. G. Field made complete reports on Pikes Peak Forest Reserve, Pagaks Springs, Fort Sedgwick, Fort Garland, and New Fort Lyon, Colo.; Eagle Pass, Tex.; Forts Union, Selden, Marcy, Sumner, Craig, Cummings, and Las Vegas, N. Mex.; and Fort Apache, Ariz., together with observations on the methods of treatment of tuberculosis at the army sanatorium at Fort Bayard, N. Mex., and at the Public Health and Marine-Hospital Service sanatorium at Fort Stanton, N. Mex.

During the nights of September 26 and 27, 1906, Pensacola was visited by a severe hurricane and the hospital and tuberculosis camp sustained great damage, all tents being more or less injured and 18 tents (representing the habitations of 38 patients) entirely destroyed. All the tuberculosis patients had ultimately to be removed to the hospital, pending the arrival of a new supply of tents and the reestablishment of the camp. However, in view of the general destruction at the Pensacola station and the wreck and disorder existing in consequence, it was temporarily regarded as an unsuitable locality, and it was further considered inadvisable to do any more than was absolutely imperative toward the rehabilitation of the camp. No other patients were sent to Pensacola, and those already there in excess of the reduced accommodations were transferred elsewhere.

This disaster at our most dependable tuberculosis camp gave new impetus to the matter of a separate sanatorium, while, at the same time, lending force to the Bureau's contention, and brought the question speedily to a crisis. A study of the reports on the various sites in view pointed clearly to New Fort Lyon, Colo., as the most favorable location, and the Bureau had tentatively made that site its choice. Active steps were taken to secure the transfer of this reservation to the Navy for sanatorium purposes, and after a careful investigation by the Secretary of the Navy, and through the kind offices of the Interior Department, all doubtful points were settled. The Bureau then recommended to the Department that the President be asked to transfer the New Fort Lyon property from the Interior Department to the Navy Department and make it available for the purpose indicated as soon as possible. This request was made October 12, and on October 25 the President, by Executive order, set apart certain sections of the New Fort Lyon abandoned military reservation, containing 575.19 acres, with the buildings thereon, for the use of the Navy Department for the purposes of a sanatorium. With this provision made, the work of putting it in readiness for the reception of patients was immediately instituted, and has been carried on with very gratifying progress.

The ideal location for a tuberculosis sanatorium should meet the following requirements:

(1) Altitude, from 2,000 to 6,000 feet.
(2) A maximum amount of sunshine.
(3) A maximum amount of dryness.
(4) Temperature conditions without great extremes, but with variability rather than equability.

A combination of the above-mentioned conditions will give a climate in which the consumptive can live out of doors the maximum amount of time, day and night, during the entire year; which, above all, is the great consideration. These conditions were found admirably combined at the site selected in Colorado.

To the successful conduct of a sanatorium for tubercular cases there are other features almost as necessary as a favorable climate, to wit, nearness to a base of supplies, convenient transportation facilities, abundant water supply, and, last, but not least, a variety of provisions for the amusement and diversion of the patients. These must be supplied, as a necessary part of the equipment of the sanatorium, to offset the otherwise inevitable nostalgia and discouragement to which the consumptive is subject, and which are two of the most patent causes of lack of improvement and without doubt two of the most difficult accompaniments of tuberculosis to successfully combat.

New Fort Lyon is far superior in every way to all the other available places inspected, and is excellently adapted to the purpose in view. It has an altitude of 3,800 feet above the sea level and is situated on the north bank of the Arkansas River, 5 miles from the town of West Las Animas, on the Atchison, Topeka and Santa Fe Railroad, which passes within 1 mile of the reservation. The nearest spur of the Rocky Mountains is about 100 miles distant.

The climate is mild and dry, with a maximum supply of sunshine and a minimum number of cloudy days, comparing favorably with both Fort Stanton and Fort Bayard, N. Mex. The summers are a little cooler, the winters a little colder, the amount of rainfall, as shown by observation, a little less, and the extent of sunshine equal to that enjoyed by the above-named places, being in the neighborhood of 80 to 85 per cent annually. In the summer the mornings and nights are bracing, and even at midday the heat is never exhausting. The winter climate is so satisfactory that in years past the Indians for hundreds of miles around always wintered in this valley. The average rainfall is 11 inches, which constitutes a very dry climate, and snow falls infrequently and is seldom more than 3 inches in depth and disappears quickly.

The fact that parties in Colorado were making an effort to have Congress cede this location to them as a site for a sanatorium for indigent consumptives of the State would indicate that others had appreciated its suitability for such an institution.

The location is on a sandstone bluff, 2,000 feet wide and 1,500 feet long, 36 feet above the river, and slopes in all directions, giving an excellent drainage. The water supply was entirely from the Arkansas River, save a small well on the premises, which furnished a supply of water for drinking, cooking, and bathing. The trees and gardens of the post were irrigated by a small canal by means of which water was led from the Arkansas River, but this has long since filled with earth, grass, and weeds, and the river bed at the point from which water was taken, 6 miles away, is now 4 feet above the river (due to the fact that the Fort Lyon Ditch Company's ditch takes a large part of the water of the river at a point 20 miles away) and the level of the river has likewise sunk. All vegetation is at present dead, but everything in the way of trees, grass, vegetables, fruits, grapes, and melons grows to perfection whenever water is obtainable, as the section is marvelously fertile when irrigated.

The tract reserved by the Government in 1889, when the post was abandoned, contains 557.87 acres, in which are located 31 unsold buildings. The majority of these buildings are of adobe; but four,

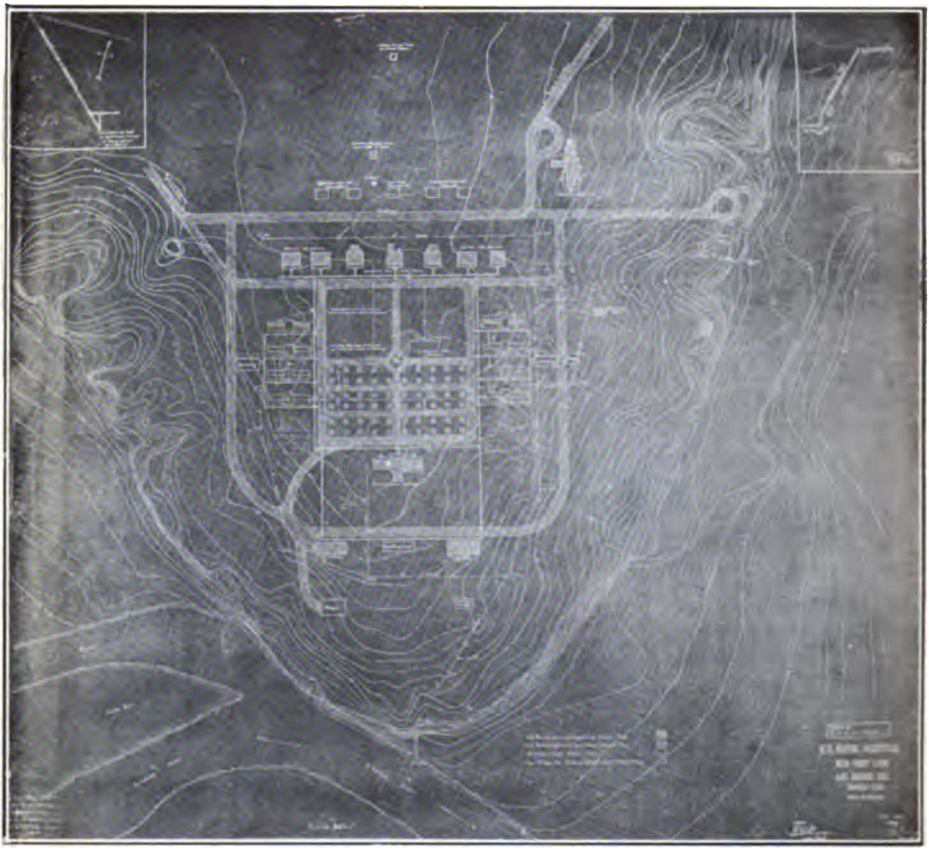

Chart of New Fort Lyon Reservation, showing the contour, general location of buildings, lay out of roads, walks, etc., for the U. S. Naval Hospital, New Fort Lyon, Cal.

14000—07. (To face p. 45.)

the administration building, hospital, and two large barracks, have walls of red sandstone, and these were in a fairly good state of preservation save the light woodwork. The rafters and sheeting were sound and strong, but the shingles were in a complete state of dry rot, and thieves had divested the buildings of doors, windows, blinds, banisters, and verandas, and in many instances had torn up floors.

The devastating action of time and the long neglect and depredation this property has suffered makes the task of rehabilitation no small one, but the natural advantages and the possibilities of this site give promise of excellent results.

It is the intention of the Bureau, with as small an expenditure from the hospital fund as possible, to make the New Fort Lyon Reservation a complete and perfect sanatorium, but, as in all such undertakings, particularly with those of the extent contemplated in this instance, development must necessarily be slow. The amount of work to be done involves considerable time, and proper precaution against misstep makes it desirable to move cautiously. Similar sanatoriums are being studied with a view to profiting by the experience of others and for the purpose of gleaning suggestions of value.

The immediate needs are being met by repairing some of the old buildings and by providing tent houses. In the meantime the renovation and remodeling of all old buildings and existing barrack appendages, the general cleaning up, and the installation of new pavilions is going on. A new and permanent sewer system has been constructed; the old, original well has been deepened and widened, giving an increased capacity, and a windmill and elevated wooden tank have been connected; a new artesian well is being sunk at the site of the proposed power house, and a large reservoir tank erected. The administration building is being renovated and repaired in accordance with excellent specifications and should be completed in a short time, and steps are being taken to secure irrigation rights. Eventually the institution will include an administration building, 8 double-ward pavilions, 1 hospital building complete for operative and other acute cases, 2 large subsistence buildings, a bakery building, 3 residences for the hospital staff, 4 buildings for quarters for sick officers, 4 houses for quarters for married hospital stewards, a house for the pharmacist, 2 water towers, 1 ice house, 1 storehouse, a stable, a barracks for a marine guard, a power house, a laundry, a recreation building, a bowling alley building, and an adjoining farm with farm house, cow barns, chicken ranch, and land for truck gardens.

At present all supplies have to be obtained from West Las Animas or from Denver, and in connection with this latter source of supply, the Atchison, Topeka and Santa Fe Railroad Company has offered to build a station opposite the site of the post if a bridge for vehicles is built across the river; but it is contemplated to make New Fort Lyon, as a sanatorium for the treatment of the tubercular of the service, largely self-supporting in the future and independent of the markets for fresh provisions.

Trees are to be planted, walks and roads laid out, and the grounds in the vicinity of the buildings beautified by landscape gardening. The contour, general location of the buildings, lay out of roads, walks, etc., for this hospital are shown in the accompanying plan.

Table showing tuberculosis in the United States Navy from 1896 to 1906, inclusive.

Year.	Admissions.					Invalided.						
	Ships and shore stations.		Hospitals.		Total admitted and readmitted.	To duty.	Invalided.	Died.	Total.	Sick days.	Average force.	Ratio per 1,000.
	Admitted.	Readmitted.	Admitted.	Readmitted.								
1895...	38	....	22	40	100	22	63	7	92	5,368	13,191	4.57
1896...	46	....	6	38	90	10	68	6	84	4,865	14,196	3.65
1897...	54	5	8	48	115	11	84	14	109	5,462	15,734	3.94
1898...	92	26	11	92	221	37	168	15	220	5,766	23,986	4.29
1899...	67	16	26	61	170	25	127	9	161	5,437	20,819	4.48
1900...	107	43	24	109	283	46	210	14	270	8,795	23,756	6.51
1901...	119	45	27	110	301	62	211	12	285	11,115	26,873	5.43
1902...	113	36	32	106	287	50	219	17	286	11,852	31,240	4.76
1903...	178	34	72	167	451	75	346	10	431	12,047	37,248	6.71
1904...	177	24	91	239	531	76	405	23	504	23,715	40,535	6.68
1905...	151	19	92	205	467	97	332	18	447	25,765	41,313	5.80
1906...	159	37	47	224	467	74	371	19	464	21,407	42,529	4.85

In presenting statistical data in a tabular form regarding the prevalence of diseases of a tubercular character in the United States Navy it must be noted that there are conditions which make such data only approximate.

The accompanying table includes original admissions and readmissions, and shows the cases occurring in the force afloat as well as at shore stations; but it must be remarked that there are no means of exactly apportioning the statistics regarding diseases of the personnel of the Navy in this manner, as there is a continuous interchange from one to the other environment, as exigencies arise. For purposes of the comparative study of tubercular disease among sailors and landsmen, therefore, this table can not be considered of much value. It must be further remarked that as the term of enlistment in the Navy is for a period of four years, and in many instances reenlistment is not made, the period of observation of a given number of individuals is limited to this term.

Data for comparing the rate of incidence of tuberculosis on the several vessels of the Navy, with observations on the varying amounts of carbon dioxide found on the different parts of such vessels, is not available. All classes of tuberculosis are included in the tables. The deaths include all those who have died from this disease in the Navy during each year; some of these cases are continued from previous years and are from cases invalided. The recorded or computed "discharges to duty" are absolutely misleading, as many of them unquestionably indicate an expiration of enlistment while under treatment and should appear as having been invalided from the service. Moreover, those actually discharged to duty do not indicate recovery of the cases, as these in many instances appear later as readmissions or they pass out of our knowledge by virtue of the expiration of enlistment while on duty. The figures in the table do not necessarily balance. The admissions and readmissions can not be accounted for under the headings "discharged to duty," "invalided from service" and "died," as some were given sick leave, while others deserted or were continued from one year to the next. The loss to the Government on account of sick days can be only approximately computed, as, in the absence of reports from Fort Bayard, the figures do not include the number of sick days at that sanatorium. Nor are the days lost to the Government on account of sick leave or as inmates of foreign hospitals or invalidism from the smaller ships and stations, where there is no medical officer, accounted for.

The comparison of the ratio of incidence of tuberculosis in the United States Navy with that of the German and the English navies has been made greatly to our disadvantage; but it is impossible to learn just what types of tubercular disease are included in their enumeration, and statistics are most unreliable unless the basis upon which they are calculated is known. For instance, it appears for the five years up to 1906 that the German navy gives a ratio of 2.4 per 1,000, the English navy a ratio of 3.2 per 1,000, and the United States Navy a ratio of 5.6 per 1,000, and it is alleged that in these two foreign navies the ratio is constant or diminishing, and that in the United States Navy it is steadily increasing; but it is shown in the foregoing and following discussion that this does not represent the truth.

Even recognizing a possible error in the comparison, due to a different basis of calculation in the three navies, however, an estimate of the incidence of pulmonary tuberculosis in our service does not tell a greatly different story. In the United States Navy the ratio of pulmonary tuberculosis per 1,000 of force for the past eleven years averages 4.9, which, it must be admitted, is high. But, after all, a comprehensive account of tubercular disease of whatever type is the only rational basis upon which to calculate for the purpose of indicating a decided tendency, as it is noted that metastasis does occur in other organs from a focus of infection in any part of the body. Indeed, it is far from the truth that the respiratory passages are alone concerned in the etiology of pulmonary tuberculosis, and we know that miliary tuberculosis has followed upon pulmonary infection. The teeth, the tonsils, and the intestinal tract are all seriously implicated as portals of entry of the germ of tuberculosis, whatever the type of the disease, pulmonary or otherwise.

If we are forced to acknowledge that the two countries with which we may be most fairly compared from a racial point of view are making a better showing against tuberculosis, then we are also forced in a quest for an explanation to believe, broadly speaking, either that the hygienic aspect of our service is inferior or that the male population of the country from which we recruit our ranks represents an inferior physical standard. We are, however, loath to admit either of these assumptions.

It seems improbable from a purely sanitary point of view (i. e., the cleanliness of our ships and barracks and the nutritive value of our rations, etc.) that our service is inferior. With respect to the native resistance of our personnel to morbid conditions: Is there anything radically wrong here? In attempting to answer this question we are led to ask how the ratio of tuberculosis per 1,000 of population in Germany and England compares with that in the United States, and as a result of this inquiry we find, as indicated by the death rate per 1,000 of inhabitants from tuberculosis, that England comes first in point of least prevalence, Germany occupies the middle position, and the United States shows the greatest prevalence. The reasons for this do not concern us in our study—the fact alone is pertinent in explanation of the above figures and should serve to put us on guard all the more in selecting recruits.

In this connection it is interesting to note the fact that, although tuberculosis is more prevalent in Germany than in England, Germany's navy shows a smaller ratio per 1,000 of tubercular disease, which points clearly to the fact that her methods of recruiting are more certain of maintaining a high physical standard. Furthermore, as tuberculosis is a disease the greatest frequency of which occurs between the ages of 20 and 30, the question naturally arises, What is the approximate average age of the personnel of the different services? It is found that that of the German navy, roughly estimated, is 27 years; that of the English navy, roughly estimated, is 30 years, while that of the United States Navy, roughly estimated, is 23 years. Moreover, any investigation of the question of the physical stamina of the material available for recruitment in a country, to be accurate, involves a study of the social and economic and climatic factors prevailing in that country.

It is to be remarked, also, that the military and naval life in continental service is more eagerly sought and appreciated, and the position of the enlisted personnel in the social life of these countries is such as to make a position in them highly prized; while the United States Navy experiences the greatest difficulty in filling its ranks from the most desirable classes, not only because our service lacks that traditional and intangible distinction which attracts the recruit unsought, and which is enjoyed by each of the two services mentioned, but because the pay is insufficient to attract or hold a sufficient number of recruits against the better paid and less irksome opportunities in civil life, except in the case of those who have rubbed with the world in the physical contest for survival in these strenuous times and met with trifling success, or, perhaps, actually failed. It is a fair contention that in the other services, particularly the German navy where conscription is practiced, they get very much finer physical specimens to enlist because the social, and even the economic, condition is entirely different. Militarism does not hold the place in the United States that it does in the old world, and our industrial demands and opportunities are now largely claiming the flower of the country. The march of progress in the industrialism of the world is led here in the United States, and this physical question as regards the military arm of the government may be one of the outward and faintly visible signs of the subtle force which is working for the advance of the pursuits of peace. The recruit may be physically fit to pass the required examination; but, broadly speaking, he does not represent the robust physique of his community. The inheritance factor, it is said, closely approaches that of certain physical characteristics in man, and in authoritative circles it is believed to be strongly influential, as there is convincing evidence that the perpetuation of tuberculosis in families can not be explained by infection, but only by the inheritance of the tubercular diathesis.

If it is the state of service hygiene which, in the light of this problem, is of primary import—is responsible for the comparatively high ratio of tuberculosis prevailing in the Navy, the indication is obvious. If, however, an inferior physical standard of the recruit is responsible, we must employ a greater care in our physical examinations and endeavor to surround our personnel with those environments which are known to be antagonistic to the disease.

Perhaps the responsibility lies in both directions, for conditions have changed—life in the Navy to-day is certainly different from that of times not ten years past, when the open-air exercise, in manning the sailing ship, and the open decks furnished means to a healthful life; but, even if the physical deterioration of the community were the one desideratum, this would reflectively involve the question of the ineffectiveness of our hygienic provisions by virtue of the fact, merely, that we are not sufficiently recognizing the later-day physical needs of our personnel under the changed character of environment and duties and are not exercising such additional precautions as the new conditions require.

In many cases the disease doubtless exists prior to enlistment, either in a latent stage, which does not develop and manifest itself until some time after, or in a state of such low-grade activity in small areas that a hurried and careless examination may not discover the condition. Then, too, the increasing demand of the Navy for men may bring about an unconscious relaxation of standard in order to fill the vacancies, and it is certain that as the Navy in its growth reaches out and claims a larger proportion of our population the greater is the likelihood of the entrance of tuberculosis.

There still prevails among certain people the idea that a sea voyage is one of the most valuable of therapeutic measures for consumptives or for those predisposed to the disease. As a result many tuberculous patients or suspects are led to enlist with the idea of resulting benefit from the pursuit of sea life.

Surg. E. R. Stitt, U. S. Navy, in discussing the late epidemic on the *Wasp*, says:

> In the examination of the enlistment records of those of the consumptives from the *Wasp* who had only recently enlisted as landsmen, for training, it was found that not one of them met the requirements as to weight for a certain height and age as given by the Nylic tables, and that for the total the figures fell 10 per cent below the average. And in direct relation to this it is to be borne in mind that, by life insurance companies, it is considered that those below the average furnish poor risks by reason of their liability to consumption.

But in spite of these representative facts, it is believed that a full consideration of those who enter the service as incipient consumptives will account for a part only, though perhaps the largest proportion, of the cases that arise. In rendering full and due justice to the officers conducting enlistment examinations it is only fair to assume that some do contract the disease from exposure in the service, and, often where the disease has existed in a quiescent state prior to enlistment, the influence of service life may in some instances be regarded as responsible for the activity of the disease. There would seem to be, then, from these sources some actual increase of tuberculosis in the service, but the greater number of cases reported are to be set down as an apparent increase, due to constantly improving means of diagnosis and, from a universal interest in and an understanding of the disease, a greater activity and more careful scrutiny on the part of the medical officer to discover its presence. In this connection a comparison of statistical data on tuberculosis in the Navy with those of diseases of the respiratory tract other than tuberculosis is interesting, and we find that as the ratio per 1,000 in the one increases the ratio per 1,000 in the other decreases, so that it may also be asserted that, while more cases of tuberculosis are coming under our observation for isolation and treatment, and our obligation in this regard is becoming greater, it is very questionable that the figures indicate an actual increase of the disease.

Whatever the origin of the disease and the circumstances of its development in any given case, it would seem to be right and just that every effort should be made to prevent its occurrence, so far as possible, on the one hand, and on the other to provide every means for its proper treatment. We are theoretically, and presumably in practice also, exercising a careful selection and demanding a high standard of physical fitness in recruiting the ranks of the Navy. The country's youth, therefore, becomes a precious charge upon our hands while rendering his services, and it should be our pride, as well as our duty, to recognize the responsibility and discharge the obligation with such completeness that the physical standard of the recruit will improve; that employment in the naval service may continue synonymous for physical betterment; and that we can stand in the front rank of the forces campaigning against the great white plague. This represents a momentous problem for the medical fraternity of to-day, whatever its sphere of activity, and for the general public as well, and it is most gratifying to note the broad popular interest and the earnest efforts being put forth by eminent scientists in every country for its solution. The Medical Corps of the Navy is eager to contribute its quota to this work. It is a duty, then, to determine those conditions of the service that favor the spread of tuberculosis, that need correction, and to estimate our resources in the prophylaxis and treatment of this disease.

While it is difficult, if not impossible, to ascertain all the causes for the existing ratio of tuberculosis in the United States Navy, some valuable lessons may be learned from a study of the question, and much light may be thrown upon the subject.

In preceding paragraphs certain possible indirect causes have been suggested, and Medical Inspector P. A. Lovering, U. S. Navy, writing in December, 1905, says: "I believe that a very important factor favoring an increase of tuberculosis lies in the common practice of discharging to duty so large a percentage of those suffering with the disease." As stated, the figures necessary to an accurate corroboration of this statement are not available, but those that are available serve sufficiently to indicate a probability which calls for serious reflection. In pulmonary tuberculosis, a form of the disease most common in the Navy, recovery does occur in perhaps 10 per cent of the cases, but this recovery requires the most favorable surroundings and treatment extending over several years. It is therefore probably safe to assume that in a very large majority of those cases discharged to duty the disease still persists, ready to reappear under favorable conditions and that every such individual is a focus for the infection of healthy persons among whom he lives.

In this connection one is led naturally to inquire, firstly, as to the possibility of ships themselves becoming foci of infection, and, secondly, as to what extent and in what manner a tubercular patient might spread the disease to other persons on board ship. Surg. E. R.

Stitt, U. S. Navy, discussing this phase of the question relative to the epidemic on the *Wasp*, remarks:

> It would appear best to leave out of consideration the possibility of contracting the disease by means of tubercular milk or meat which might be brought on board ship, because such mode of infection is generally accepted as rare in adults and, furthermore, the meat is very thoroughly cooked shortly after being received on board ship, and milk, other than condensed, plays an unimportant rôle in the dietary of the men of the Navy. As to the probability of a ship being a focus of infection in the same sense as we understand the question with reference to a room which has been occupied for an extended period of time by a consumptive and which statistics show to be frequently responsible for cases of the disease in those subsequently occupying such room, what is there to say? It has been abundantly demonstrated, statistically and by experiment, that the source of danger in such rooms is by reason of the expectoration of tubercular sputum, which, subsequently drying and becoming pulverized, is disseminated in the air of the room as minute particles carrying tubercle bacilli, which, being inspired, over more or less extended periods of time, by a subsequent occupant, sets up the tubercular process. The conditions existing on board ship are not favorable to such a state of affairs, because, in the first place, the abundance of spit-kits provided for the use of the men and the opposition that promiscuous expectoration on the decks meets from others make it improbable that tubercular sputum would be deposited to any extent about the living compartments. The spit-kits in use in the naval service conform, in large part, to the most approved requirements relating to such articles from a standpoint of tuberculosis prophylaxis, viz, they are larger at the bottom than the top, have a cover, and contain water. It would, of course, be impracticable for them to be of porcelain. Even should a small amount of infectious sputum be deposited on the decks, it would have slight chance of becoming desiccated and disseminated, the frequent use of the damp swab maintaining the moist condition of such sputum. From this it would appear that very little danger of infection can attach to the ship itself.
>
> Now, as to the second proposition—the manner by which a tubercular patient might infect other persons on board ship. From what has just been stated it will be understood why the usual method of infection is of minor importance in the Navy, the sputum not being promiscuously expectorated and not having an opportunity to become disseminated. There remain two other ways in which tubercular infection might be brought about. Flügge and others maintain that a tuberculous patient in the act of coughing ejects fine particles which contain tubercle bacilli, which it is possible for a person within the zone of danger (3 feet) to inhale and become infected. Sleeping, as men do, in closely adjoining hammocks, it will be readily perceived that if such a manner of infection be possible it would easily demonstrate the possibility of cases of infection being brought about in this way. In a series of experiments made by Cornet, in which he employed only tuberculous patients having abundant sputum loaded with tubercle bacilli and in whom the cough was characterized by the violent expulsive emission of sputum spray, the particles being deposited on the surfaces of plates placed within the zone of danger and which were treated with physiological salt solution and the material injected into guinea pigs, there resulted failure in the case of the experiments with 31 out of the 33 individuals made use of. I am forced to consider that the view of Cornet, that "*infection by means of sputum spray is rare*," has strong supporting evidence, yet, by virtue of the close arrangement of the hammock billets, this must not be lost sight of as a possible means of spreading tuberculosis. If the methods usually considered by sanitarians as the chief channels of infection do not pertain to any extent in the Navy, what other ways are there which might bring about the infection of one shipmate from another? Having frequently observed the very filthy condition of the handkerchiefs when brought out for use, and knowing that the method frequently employed by the men when sleeping in their hammocks to dispose of the secretion brought up in coughing is by means of their handkerchiefs, I am of the opinion that such agency may play an important rôle in disseminating tuberculosis on board ship. Manifestly any expectorating on the deck below his hammock would meet with the strongest disapproval on the part of phthisical subject's shipmates as well as from those in authority, so there only remains the alternatives of swallowing

> the sputum or expectorating it into a handkerchief. The importance of this method of transmission of the disease is recognized by all authorities, and it certainly seems reasonable to suppose that in the Navy it is of paramount importance. Not only does the sputum become dry on the handkerchief and so disseminate its infectious material, but the custom which is so prevalent among sailor men of indiscriminately using the towels and handkerchiefs of others facilitates infection of the person using a handkerchief containing dried, pulverized tubercular material in a manner which would scarcely obtain in civil life.

Surgeon Stitt in his discussion of possible factors in the causation of tuberculosis might also have cited the common custom among the enlisted personnel of borrowing and loaning smoking pipes and the prevalence of cigarette smoking, the first as a possible direct cause of the dissemination of infection and the second as a contributory factor.

Cockroaches are another possible source of tuberculosis, for they are particularly attracted by sputum, and as they crawl over food are capable of transferring infection. Tubercle bacilli have been demonstrated in cockroaches, and it has been further determined that the organisms pass through this insect without destruction. The recent studies of Lord show that the ubiquitous fly may also play an important part in the alimentary transmission of tuberculosis, the channel of infection upon which so much stress is being laid. It is said " bacilli not only pass the alimentary canal of the fly uninjured, but undergo a marked proliferation there. Fly specks may contain as many as 5,000 bacilli, and, according to Lord's computation, thirty infected flies may deposit within three days from 5,000,000 to 10,000,000 tubercle bacilli. The danger does not seem to be from the liberation of tubercle bacilli in the air, but from the deposit of the fly specks on food."

Referring to the first sentence quoted above from Surgeon Stitt, although what he says is regarded as in the main true, it is nevertheless not to be inferred that milk is entirely a negligible factor in the etiology of tuberculosis in the Navy. In considering this source of tubercle infection, we can not ignore the large aggregation of young men of the service at every training station and the Naval Academy, where fresh milk constitutes a large part of the diet. These young men, still incompletely developed, are especially liable to tuberculosis, and it has been recently recommended that all such naval stations be furnished milk from cattle that have been subjected to the tuberculin test and proven healthy, or, where this test can not be applied, either because there are no competent people to conduct it or from local antipathy to such procedure, that the milk be sterilized and that sterilizing plants be installed for the purpose.

Again, as it is a fact that the germs of tuberculosis may be introduced into the circulation through vaccination and as vaccination is compulsory and frequently performed, the question would naturally arise: Is it possible that the operation bears any relation to tuberculosis in the Navy? There are no data upon which to base a positive reply, and though, by reason of the care with which vaccination is performed in the Navy, we think it may be excluded as a cause, it nevertheless represents another pitfall to be avoided.

Surgeon Stitt goes on to say:

> Anyone who has studied the conditions prevailing on board our men-of-war can understand the unfavorable conditions for consumptives where the cubic air space per man frequently falls below 300 cubic feet and where, even if the

artificial means of ventilation provides for such deficiency, proper conditions may not obtain by reason of the tendency to decrease the revolutions of the blower, not only by those in authority, to save coal, etc., but surreptitiously, as well, by the men themselves closing the valves to mitigate drafts or lessen noises at night.

Furthermore, the artificial surroundings of the life aboard ship, especially the confinement below decks, where many of the crew are denied exposure to the sun's rays and a free circulation of fresh air, lowers the vitality and, therefore, predisposes to the disease.

Prolonged cruises in the Tropics also exert their influence toward diminishing vitality, and the ratio of tuberculosis in our Navy would seem to have taken an upward start since the extension of our interests in tropical climes, either as a consequence of or coincident with it. It is even contended "that the entire United States, with the exception of parts of Washington and Oregon, is too far south for blonds. City life in the United States, on account of the glare, is especially prejudicial to the health of blonds." Woodruff in support of this statement cites the fact that "the Norwegians and Swedes, coming from 60° and above to 45° and under, arrive here as vigorous men and women, but in a generation or two they degenerate into weak and neurasthenic men and women, many of whom succomb to tuberculosis."

To prevent the dangers of tubercle infection it would seem urgently advisable, according to Lovering, "that all tuberculous patients afloat and at naval stations should not be retained for treatment, but at once sent to a hospital, and that no tuberculous patient admitted to the hospital should be discharged to duty until examination of the sputum * * * has given negative results" over a considerable period of time. Indeed, it is questionable whether cases once having suffered with the disease are ever again fit for exposure to the trying conditions of naval service, certainly not under several years:

> It is hardly necessary to point out that at the naval hospitals all persons suffering with well-marked pulmonary tuberculosis should be isolated from the other paitents, and sent as soon as practicable to a sanatorium devoted to that disease alone. This removal is imperatively demanded for the protection of patients suffering with other diseases. It would seem urgent that at all training stations, receiving ships, and barracks where recruits are being constantly received especial care be used to discover those who are suffering with chronic colds or coughs and that their sputa be examined, * * *."

Throughout the service the debilitated should be given special attention in this regard. It may be that the development of opsonic work together with tuberculin will in the future afford a means to detect the disease where other means of diagnosis have failed.

In the matter of recruiting, great pains should be taken to detect tuberculosis in its incipient form before the recruits are drafted into active service, and as regards enlistment we must insist on a minimum standard of physical development and age. Until it is more fully realized that tuberculosis is a disease of nutrition and until a minimum standard of physical requirement is more consistently exacted we shall not have started in a fair way to materially reduce the tuberculosis in the service. This is particularly true of the engineer's force, which necessarily has much hard labor to perform below decks during the short stops in port as well as at sea. The duties of the engine and fire room forces represent the extreme of the different occupations which keep men below decks, and they contribute the greatest number of cases of tuberculosis. The engineer's force is particularly subject, moreover, to pulmonary affections consequent upon sudden changes from a high to a low temperature, or even a cool one. Frequent and sudden chills from such cause may be prevented with due and possible care. The men must be made to understand the dangers in leaving overheated localities and going immediately under a ventilating shaft or on deck or into the cold-storage compartments without necessary precautions, such as drying the skin and protecting the body by additional clothes, according to the season or climate. Men in the engine and fire rooms and other particularly warm places should not be called suddenly for duty on deck. When their services are required on deck, unless an emergency is to be met, they should be given time to dry the body and put on necessary additional garments.

As regards recreation and exercise, it is a mistake to suppose that the various athletic sports, exercises, and diversions engaged in by the enlisted men satisfy all that is required for their physical development. As a large percentage of the enlisted force are mere boys not fully grown, their development requires outdoor life of a regular active character, in order to make them vigorous men able to withstand the hardships of warfare or prolonged physical strain of any kind.

The value of the setting-up drill, particularly the breathing exercises, as a prophylactic measure against pulmonary tuberculosis in the Navy can not be overestimated, but it is believed that steps should be taken to give, with more certainty, all the enlisted personnel a larger proportion of time out in the sun than is secured by virtue of those athletics, which by their very nature engage the time of those already physically fit and eliminate those in most need of the exercise. Long marches in light-marching order, part of the time over uneven ground, taking half the crew at a time, except those debarred by sickness, and regularly sending men out in sailing and pulling boats are suggested procedures; indeed, any such practice might meet the desired end and would not only be of immense benefit to health, but would also be welcomed by the men as a relief from the monotony of ship life. Proper rest and food, of course, have a very decided bearing upon the conservation of vital resistance in the prophylaxis against tuberculosis, but these latter considerations, it is believed, are well met in the United States Navy.

Cigarette smoking should be prohibited among the younger members of the crews on board our ships; the occasions for sanitary talks to the enlisted force should be taken advantage of to sound a note of warning against those personal habits which expose to tuberculous infection, and to enlist the intelligent and interested cooperation of the men in all measures making for a vigorous resistance to this disease. We should also bear in mind the possibility of infection through the agency of flies and cockroaches and be much more strict than at present in the protection of foodstuffs, and more enegertic and persistent in our efforts to exterminate these insect pests.

The problem of treatment largely resolves itself into dietetic, climatic, and broad hygienic considerations, and the necessity for these makes clear the reasons for the Bureau's earnest efforts to establish a proper sanitorium.

NEW CONSTRUCTION AT PRESENT BEING UNDERTAKEN OR CONTEMPLATED.

A careful estimate of the work needed to place the Medical Department of the Navy on a proper peace-time basis shows that nearly $2,000,000 will be required. Its backward condition grows out of the extremely conservative policy adopted for many years in regard to the Medical Department of the Navy and also to the great increase in the Navy itself in the last twenty years. About 1890 the work of placing this Department of the Navy on an efficient basis was begun, and in 1902, when the present Chief of Bureau entered office, the outlook for improvements immediately needed and for which no provision had been made was extremely disheartening.

Since 1902 much has been accomplished, but it is only just to say that a vast deal remains to be done before we can feel that even in time of peace we shall be enabled to properly care for the sick of the Navy in accordance with the high standard demanded at the present day by advanced medicine.

Congress has been appealed to with success in many directions, but much more is imperatively demanded. The more important works of construction are hereinafter noted. The Naval Medical School Hospital is now in process of completion. The need of this new hospital in Washington had been felt for many years and the large number of officers on duty in Washington as well as the enlisted personnel now have ample facilities for medical, surgical, and special treatment. This hospital, being carried on in conjunction with the Naval Medical School, has an able corps of medical attendants, and offers a place for the treatment of many difficult and obscure cases, which can not be so successfully cared for at other places. It supplies the means for properly caring for our own people instead of requiring them to enter civil institutions as heretofore. It also gives medical officers at the Naval Medical School who have just entered the service an idea of a model naval hospital. It will eventually supply the long-felt need of practical demonstrations and bedside instruction in connection with the school laboratories and enable the didactic courses of instruction in surgery, tropical medicine, naval hygiene, etc., to be properly illustrated by bedside teaching.

Repairs and extensions are being made to the school from time to time to meet the demands of the classes of young medical officers assembling there, and furnish to older officers in the Corps a chance to keep in touch with the progress of their profession.

The old hospital at Washington has been remodeled for a temporary training school for nurses and still continues to receive emergency cases from the navy-yard and the marine barracks. Permanent quarters for the training school for nurses will be asked for in connection with the Naval Medical School, as this is the normal place for the instruction and training of the Corps, and such concentration will enlarge the facilities for instruction and training, associate officers and the enlisted body for the more satisfactory conduct of drills, and most effectively serve to meet the dictates of wise economy in carrying on the work of these two schools.

The dispensary at the Mills Building has been reduced to a simple station for emergency cases in the Department, but the medical service proper of resident officers has been provided for to better advantage at the Naval Medical School Hospital. There a corps of specialists is available to assist the medical officer in charge of the dispensary and all the facilities of the new hospital and school are convenient for the thorough study and treatment of cases such as was impraticable when the dispensary was located in the Mills Building.

The naval hospital at Norfolk, Va., is being renovated and rebuilt. That hospital had become so dilapidated that it was a disgrace to the service, notwithstanding the Bureau's representation of its urgent needs and yearly appeals for money for its rehabilitation. For this purpose $200,000 was authorized and $100,000 appropriated by Congress, and it is hoped that in two years this most important hospital will be in excellent condition. The reconstruction of Norfolk hospital provides a great base hospital for the east coast and the West Indies, but the opening of the Panama Canal in the future and the presence of ships in the Gulf of Mexico point to the necessity of renovating the naval hospital at Pensacola in the near future. Plans are being made for this work, and Congress has appropriated $25,000 for new construction. This amount, however, will not be sufficient to place the hospital facilities at this station in a first-class condition and a further appropriation will be needed.

The naval hospital at Portsmouth, N. H., will shortly have to be abandoned on account of the construction of the new dry dock in its vicinity and the encroachment upon its site of shops; it is estimated that an expenditure of $150,000 will be needed for a new hospital.

The naval hospital at Chelsea will require renovating and extension in the near future, at an estimated cost of $200,000.

The hospital at Newport, in connection with our largest training station, is entirely inadequate. The Bureau recommends the abandonment of the present flimsy structure and the building of a new hospital on another and fitter site. Twenty-five thousand dollars was appropriated for the repair of this hospital and the building of quarters for medical officers, but the amount is so small that it has been found impossible to proceed with the work proposed. Consideration of the recommendation for a new structure with quarters for officers is requested. It is estimated that $275,000 will be required for this work.

The naval hospital at New York is in fairly good condition. The renovation of the old laboratory building will be a great improvement and will add about 60 beds to the hospital with improved facilities for storage, for the temporary care of the insane, and for cells.

The growth of the League Island Navy-Yard and the increasing number of ships being repaired at that station calls for a hospital better able to accommodate the sick committed to its charge. It will be necessary in the near future to renovate and enlarge the old Philadelphia hospital in conformity with growing needs and modern hospital standards. This can only be done at a considerable cost, as almost every feature of its construction is antiquated, and it is in a very bad state of repair. It is estimated that $100,000 will be needed to carry out this work.

A new naval hospital at Annapolis has been partially completed and gives the greatest satisfaction, and enables the Medical Department to give the best of care to officers, midshipmen, and such of the enlisted force of the station as may be sent there for treatment. It is hoped that Congress will appreciate the need of properly completing this important hospital, and about $125,000 will be required for this purpose.

With the specific appropriation of $150,000 made by the Fifty-ninth Congress a new naval hospital at Puget Sound is to be built and the preliminary work is now under way. This station is soon to be a great and important one, and the completion of this hospital can not come too soon. The present accommodations are nothing more than sick quarters and it is to be remembered that practically the only other hospital on the west coast is at Mare Island.

General repairs, the construction of new contagious wards, and enlargement of the present hospital at Mare Island are at present under way, and this will furnish accommodations for the care of about 212 patients as against its present capacity for 172 patients. The presence of the fleet, which is expected to assemble in Pacific waters will nevertheless bring more sick to it than can be well taken care of without special effort and, with a view to complete preparedness, instructions have been given to push the work on this hospital.

The Navy, in line with all other organizations, both civil and military, has a manifest duty to perform in the care of those of its members who contract tuberculosis. For many years efforts have been made to secure a suitable place for the care of those afflicted with this disease. The President, realizing the great importance of the care of this class of patients and to give those so afflicted a chance to regain health lost in the service, has so far interested himself in the matter as to cause to be set aside the old army reservation at New Fort Lyon, Colo., for a sanitorium for naval consumptives. This reservation is peculiarly well suited to the needs of these patients, and the grounds and the numerous buildings left there by the Army are being rapidly converted into a model resort for the tuberculous. Although a great deal has already been accomplished toward their accommodation, much still remains to be done before this sanitorium can be regarded as complete. It is, however, already caring for from 60 to 70 patients. The work of reconstruction is being carried on with the approval of the Secretary of the Navy, out of the hospital fund, which use is authorized by the various acts of Congress for the purchase of hospital sites, the erection of hospital buildings and their maintenance, as well as for the care of the sick of the naval personnel, of which fund the Secretary of the Navy is sole trustee. Strict economy consistent with the needs of the service is being observed, and the latest methods of construction for this class of patients is being observed. Several years will be needed to properly complete and equip this institution, in accordance with the plans outlined, and to prepare it for the constantly increasing demands of the service.

The establishment of the new naval training station on the Great Lakes calls for a new hospital, the plans and specifications for which are complete, at an estimated cost of $250,000. It is hoped that Congress will make appropriation for this during the coming session, so that it may be ready for work when the station is placed in commission. Indeed, it must be ready if proper care is to be taken of the young recruits who will be gathered there from all points of the Middle West. The need of timely and proper provision can not be overestimated.

Yokohama, which has been a station of the greatest use to our Navy in years past, offering almost the only haven for our sick until the building of Canacao hospital in the Philippines, will be added to by the construction of a new main building. Twenty-five thousand dollars was appropriated for this work, but owing to the increased cost of labor and material since the appropriation was made that amount is inadequate. The continued use of this hospital as a place for the recuperation of officers and men who are debilitated by the Philippine climate and by disease contracted there attests its value.

Canacao hospital, near Manila, equipped and built especially for the Tropics, continues to be of great value for the care of the sick on the Asiatic Station. Since the Spanish war and the presence of so many ships in the Far East, together with the establishment of various shore stations, this hospital has been found inadequate to the needs of the service, and the work of enlarging the present hospital is now under way. This hospital, in connection with Yokohama hospital, enables us to provide for the care of the sick in that part of the world in a satisfactory manner and represents a great saving of money and men, as without these hospitals many of the sick would of necessity be sent home, thus reducing the force on the station at much inconvenience to the naval authorities and entailing expense to the Government.

With regard to the recently agitated question of a naval hospital at Baguio, P. I., and the correspondence and reports bearing thereon, the Bureau has recently given careful consideration. It is deemed advisable to secure ground for this purpose as soon as possible, and to this end it was recommended, on June 12, 1907, "that a board of officers be appointed to select one of the available sites for the possible use of the Navy and that action be taken by the Department to have it set aside for a naval sanitorium." The need of such a sanitorium is, however, not pressing, nor is it likely to be in the near future, and the recommendation in regard to site was made with a view to securing the best obtainable for future naval use while there is an opportunity for choice. The naval hospital at Canacao, P. I., has proven a satisfactory one, and those patients who fail to properly convalesce there are usually sent to the hospital at Yokohama or invalided to the United States.

Provisions for the proper care of the sick are urgently needed at Samoa and on the island of Guam, and small hospitals and dispensaries will have to be erected to meet the demand. At both these stations a large native population is cared for by the naval surgeons. The Bureau contemplates making the indicated necessary provisions above mentioned for the care of the sick in these places at an early date.

As fast as possible separate quarters are being provided for medical officers on duty at the various hospitals. The precarious living conditions of officers at naval hospitals in years past have been a great hardship, as they have been generally obliged to live in small quarters with their families in the hospital buildings. This condition represents not only an uneconomic diversion of the space valuable for legitimate hospital purposes, but an injustice to the individual officers, and is being corrected as fast as possible.

Many stations, such as Charleston, New Orleans, Olongapo, and the training station at San Francisco, are being supplied with new and modern dispensaries to meet their immediate needs, but as these stations grow, better and larger provisions are contemplated by the Bureau. In view of the growing importance of the Charleston Naval Station, it will soon be necessary to erect a hospital on the grounds already set aside for that purpose. At present the only hospital on this portion of the coast is at Norfolk.

At Sitka the former house of the governor has been secured as a dispensary and small sick quarters, and this has improved the hospital facilities on this station and meets all demands in this direction.

The past few years have fully demonstrated the great need of hospital facilities and other provisions for taking care of the sick in the West Indies, and if it is to continue the active drill and rendezvous ground for the Atlantic fleet during the winter months as heretofore such provision will have to be considered.

At San Juan a new naval hospital is needed, and plans and specifications are being prepared for one at an estimated cost of $75,000.

Guantanamo is one of our principal naval stations in the West Indies and has become of such importance that it deserves more than a passing notice. The naval station proper is well located, and when the extensive works now going on are completed it will become a large and important naval base. In its present condition it is sadly lacking in many sanitary essentials, and these are of such vital moment that the Bureau is of the opinion that every endeavor should be made to correct the shortcomings that now exist. Much has been done at this place in the way of improvements, but up to the present they all bear on the purely hostile or defensive side of the question, and in carrying out these very necessary features a grave error has been committed in not providing for the great essentials in every settlement from its inception, whether military or civil—viz, measures for the maintenance of health and the preservation of life.

The lack of all hospital facilities is lamentable. The extent and value of the station and a consideration of its future development is enough to impress one with the necessity of providing a small but efficient hospital for this station. Being contiguous to the winter drill grounds of our fleet, such a hospital will find a large sphere of usefulness, as has been clearly indicated by the experience of the past few years.

In addition, a site for an isolation camp should be selected, properly prepared, and kept ready with all permanent equipment on hand, so that it could be immediately occupied if required. Epidemics of various contagious or infectious diseases demanding isolation have occurred annually at this place and are liable to occur in the future. They have all been promptly met, but not in the orderly and scientific manner that the service expects or the times demand. The problem of food and water supply should be solved in advance, and disinfecting apparatus, latrines, bathing facilities, etc., are all features that should be supplied. To effect these changes and make the provisions indicated, a large sum is not required, but even a large outlay, if it were demanded, should not stand in the way of necessary measures for safeguarding life.

A further discussion of the sanitary needs of this station appears under the head of "Naval stations beyond * * * the United States."

Culebra presents particular needs in this regard, as there is not a single medical or sanitary arrangement or structure that could reflect credit upon the service, or, what is more, approach adequacy, and even the existing meager provisions for the care of the sick and the preservation of health are lacking in those fundamental principles demanded by modern scientific methods.

The place designated as sick quarters is not worthy of the name; it has not a single commendable feature, not even in location. A detailed description would simply be a list of defects with not a word in its defense. A small hospital suitable to the climate and a dispensary, up to date, with operating room, an examining room, and one for bacteriological work, is sorely needed. Other needs of the station of sanitary import are considered under the head of "Naval stations beyond * * * the United States."

In general, and from experience gained in many years, it would seem to be a very sound procedure in the establishment of new stations to make some efficient provisions for the preservation of health and the care of the sick before attempting the greater organization of the station. We should be prepared at our several stations, convenient to Caribbean waters, to meet the emergency demands for medical care that may arise at any time.

Finally, the Bureau, as in previous years, urges the commissioning of two hospital ships, one for the east and one for the west coast. The *Relief* and the *Solace* could be fitted for this purpose, but it has always been the Bureau's wish that Congress would appropriate sufficient money for the building of a ship especially designed for this purpose, and thus be prepared for any emergency of peace or war in this direction.

NAVAL STATIONS WITHIN THE CONTINENTAL LIMITS OF THE UNITED STATES.

Navy-yard, Portsmouth, N. H.—The sanitary condition and health record for the year was excellent. The total number of cases admitted was only 87 out of an average complement of 145, and of these 43 were cases of imported malarial fever and contributed 361 sick days to the total 535 sick days for the year. There were no epidemics, and the records do not show the existence of any morbific influence peculiar to the station, unless it is that of climate, with a consequent tendency to predominance of respiratory diseases of a simple character and tonsillitis. There were, however, only 4 cases admitted with bronchial affections and 6 with tonsillitis. Digestive disorders and venereal diseases are the two classes most prominently represented in the sick record, except general infectious diseases on account of the admissions for malaria; but, even so, the number of cases was inconsiderable, 10 and 9, respectively. No injuries of a serious nature are reported.

Navy-yard, Boston, Mass.—During the past year the average complement of officers, marines, and prisoners at this yard was 542. Of this force 370 were admitted for treatment. Three deaths occurred during the year; one from concussion of the brain with cerebral hemorrhage, one from heart disease and Bright's disease, and one from apoplexy. The last two were cases of officers.

The number of sick days (1,676) greatly exceeded that of the preceding year, but this increase is attributable to the extent of malaria among the marines, who contracted the disease while stationed on the Isthmus of Panama. There were 74 admissions and readmissions of this disease, and some of the cases assumed a grave form of malarial cachexia. Other noteworthy cases of disability were venereal diseases or diseases of venereal origin, 49 cases; mumps, 5 cases; typhoid fever, 1 case.

The medical officer of the yard reports that nothing was done to improve the ventilation of the marine barracks. It is an old structure and should be remodeled. As arranged at present all the floors are connected by open stairways, which permit the foul air from below to ascend to the upper floors. At night the atmosphere becomes so vitiated as to be almost overpowering to one entering from the outer air. There is no method of ventilation except by doors and windows, and when overcrowded, as the building frequently is, this method is faulty and inadequate in a cold climate. The prison is kept in good condition, but is overcrowded beyond hygienic limits.

The drainage system of the yard is defective, and the basements of buildings 34, 38, and 39 almost always contain more or less water.

Bathing and washing facilities and extended water-closet accommodations are urgently needed for the use of the crews of ships in dry dock. Repeated recommendations have been made on this point, but nothing has as yet been done. Wash rooms and more water-closet accommodations are also required in the various buildings where large numbers of men are constantly at work. The average number of men employed in the yard during the year was about 2,100. First aid was rendered in 182 cases, some of them serious, and 2 died of injuries received.

Naval torpedo station, Newport, R. I.—The general health of this station has been excellent. Notwithstanding the numerous epidemics which have occurred at the Training Station and in Newport and the constant communication between both places and this station, but one mild epidemic of measles, consisting of 5 cases in all, occurred—last May.

The average complement of the enlisted force was 264.53. The total number of sick days was 398, which gave a daily average of 1.086 patients, and 0.397 as the percentage of sick. The civilian workmen on the station averaged about 210 daily. During the past year 27 were given first-aid attention for burns, cuts, bruises, etc. No deaths occurred among the commissioned and enlisted complement.

The general sanitary condition of the station was excellent. The living quarters for the men are clean, well kept, and adequate for good sanitation even when the complement is augmented by the organization of a class for instruction during the summer months, for then the windows are kept constantly open and ventilation is excellent. But should this increased complement be continued into the winter months and all housed in the present quarters, proper ventilation would not be possible with the existing provisions.

During the year surface drainage of the station has been greatly improved by grading several parts of the island and substituting granolithic walks in many places; the sewerage system has been put in thorough repair; a garbage incinerator has been installed and the heating system for officers' quarters made adequate.

The water supplied from the south well on this station has been the subject of extensive reports relative to its potability. Mention need only be made here that after many and frequent tests, qualitatively, quantitatively, and miscrocopically, the water was finally and permanently condemned and the well locked up. This well should be filled up and obliterated, being, as it is, a source of danger to public health, and it has been so recommended by the medical officer of the station. The whole water supply of the station now comes from Newport, and, although potable, it has been deemed a wise precaution that, for drinking purposes, it be boiled.

Navy-yard, New York.—The health of this station has been good, except for a large number of cases of malaria, 122 admissions and 77 readmissions occurring among the 125 marines, who were sent to this post after a stay of less than three months on the Isthmus of Panama. This is, however, no evidence of any special disease influence peculiar to this station, and the buildings, quarters, and yard are in a satisfactory sanitary condition. Improvements contributing to this end have been accomplished during the year and others are in process of completion or contemplated.

The dispensary records show 1,219 cases of accidents and sickness, which, though appearing to be an actual and gratifying improvement over the record of 1905, is really explained by a material reduction in the civil force, owing to insufficient appropriation for continued employment. Four fatalities occurred, all cases of sudden death not resulting from injury, with the execption of 1, who was killed by an electric shock.

The naval personnel contributed 414 admissions with 2,709 sick days to the disability record of the station; 124 cases were transferred to the hospital, most of these being the malarial cases heretofore cited, and 14 medical surveys were held, 12 for causes that existed prior to enlistment, which constitutes a notable reduction over the preceding year and probably indicates greater care in recruiting.

Navy-yard, League Island, Pa.—The sanitary condition and health of this station was good. No case of illness is assignable to any peculiar morbific influence, even the 42 cases of malaria having received their infection—41 in Panama and 1 at Olongapo. Mosquitoes are, however, abundant, and the anopheles is numbered among the varities found.

The other principal diseases which contributed to the daily average of 3.27 patients are venereal diseases, 51 admissions, and tonsilitis, 21 admissions.

There were 268 surgical cases of varying character and gravity (accidents to yard workmen) treated at the dispensary; of these, 6 serious cases were sent to the Methodist Hospital of Philadelphia. Forty-nine medical cases are also recorded from among the civil employees, 4 of which were sent to the hospital.

A modern dispensary equal to the demands of the station is badly needed, and the growing importance of the yard gives emphasis to the fact. It is recommended that appropriation by Congress be requested for this purpose.

The medical officer of the U. S. S. *Lancaster* suggests that the space on the eastern end of the island, between the officers' quarters and the "camp" might be utilized to the great benefit and contentment of the enlisted men of the station and ships coming to this yard. It could be used for drills and athletic purposes and would make an excellent recreation ground, serving to attract the men from the ships for healthful and outdoor exercises, and thus relieving the congestion of the living spaces during the day.

Naval Academy, Annapolis, Md.—The total number of sick days for the year amounted to 5,656 for an average complement of 1,287. As compared with the previous year, this statement represents a decrease of 1,748 in the number of sick days and only 17 in the average complement. The daily average of patients was 15.49, but in the computation no allowance is made for the four summer months, during which the three upper classes of midshipmen were away from the academy.

The three principal causes of disability concerned in the foregoing summary are: General infectious diseases, 179 admissions and 1,274 sick days; diseases of the digestive apparatus, 270 admissions and 1,196 sick days; and injuries, 120 admissions and 809 sick days. Among the other classes of diseases contributing to the sickness at the station, diseases of the motory, genito-urinary, cutaneous, visual, and respiratory apparatus, the nervous system, and parasitic diseases occupy an important place.

Under infectious diseases are recorded 130 cases of influenza, with 419 sick days; 9 cases of typhoid fever, with 580 sick days; 15 cases of benign malaria, with 36 sick days, and 4 cases of malignant malaria, with 21 sick days.

Five deaths occurred: One midshipman from typhoid; 2 midshipmen from appendicitis; 1 pay director (retired) from chronic heart disease, and 1 private marine, who was drowned; 18 cases were invalided to hospitals, 3 from service and 15 on sick leave.

The 9 cases of typhoid fever which occurred were clearly traced to points beyond the environments of Annapolis. Six cases developed among members of the fourth class, who, as candidates while en route to the Naval Academy, spent from three hours to three days in Washington, and the remaining cases were directly traceable to exposure in Boston, Baltimore, and Norfolk.

The sanitary condition of the grounds and buildings, save the mess hall in the midshipmen's new quarters, is reported as having been excellent.

The various ships, including the monitors *Arkansas*, *Florida*, and *Nevada*, and the station ship *Hartford*, which are a part of the present Naval Academy establishment, have also been kept in very good sanitary condition.

Navy-yard, Washington, D. C.—The health of this yard has been remarkably good and the cases of disease and injury that are recorded for the year were of little moment. No infectious disease or serious illness of any kind occurred, and severe injuries among the civil employees were infrequent. Out of 4,800 men of this force, 10.18 per cent were treated at the yard dispensary, 23 were sent to hospital, and 23 were sent home in ambulance.

This yard in general has been kept exceptionally clean and neat, and the sanitary condition of all buildings was satisfactory, with the following three exceptions:

(1) The main foundry is reported as being extremely and often dangerously hot in summer, owing to the fact that the neighboring buildings cut off the breezes and prevent a free movement of the surrounding air. This is perhaps only in small measure remediable by artificial means, but the unhygienic state of the air in this shop during winter when the windows are closed calls for improvement in and extensive additions to the ventilating provisions.

(2) The water-closets in the marine barracks are badly located in the basement, and the place is insufficiently ventilated.

(3) The water-closets for the civil employees are inadequate in number, and the crowded condition and continual hurried use of these accommodations are productive of filth and incessant breakdown.

Naval proving ground, Indian Head, Md.—The health of this station has been excellent, only a few mild cases of malaria of short duration marring an otherwise perfect record. The sanitary condition of the station from every point of view has been equally satisfactory. One officer was invalided to the naval hospital, Washington, D. C., with malaria.

Navy-yard, Norfolk, Va.—This yard is one of the oldest and the best located geographically of any in the country and is of rapidly growing importance, the average number of workmen employed throughout the year approaching 3,000. Its 360 acres present a busy scene almost any season, for, climatically, the yard is so well placed that it is exceptional when all varieties of operations can not be carried on outside during the entire year. Herein lies its great advantage, though others of military import are also striking. The conditions of equable and moderate temperature, low humidity, and preponderating fair weather are, however, not only favorable to incessant undiminished work and large accomplishments, but represent much that climate can afford in the interest of health.

Such brief consideration is given these representative facts with a view to emphasizing the inevitable growth of the station and nature's contribution to its best possibilities, and, consequently, with a view to stimulating substantial and sustained human endeavor to build upon the existing natural advantages by the employment of all resources and the exercise of every dictate of modern scientific sanitary standard, so to improve the condition of territory and buildings that instead of its being unfavorably criticised the Norfolk station may be a model of cleanliness, good order, and health. Paving throughout, grading, and a thorough system of draining are requisite improvements. Without these nothing really permanent can be accomplished and the yard will continue to be, as it has been in the past, deep in mud in its most important parts in winter, enveloped in clouds of stifling dust in summer, with choked gutters, and broken drains, adding their quota to conditions inimical to health and provocative of epidemics of disease.

These are facts which have been the subject of repeated reports and urgent recommendations by the medical officer of the yard, Medical Inspector Samuel H. Dickson, U. S. Navy, and it is hoped that Congress will see the necessity of a generous appropriation.

Progress has been made toward cleaning up and clearing away large accumulations of rubbish and decayed matter, and on the whole the yard is in better sanitary condition than a year ago, but much more and greatly needed work in this direction is called for.

The public buildings are in a fair, good, and excellent sanitary condition, depending upon their date of construction. The old marine barracks, the prison at the main gate, an old structure in which the enlisted men employed on the yard launches are quartered, and the workmen's water-closets throughout the yard are a decided exception to this general statement. The latter two in particular are reported as out of repair and most insanitary.

The health of the station has been very good. In the spring measles and mumps appeared, 9 and 11 cases, respectively, principally among the marines, and one bad case of cerebro-spinal meningitis also appeared at the barracks. With this and several other similar examples in mind, the question naturally arises as to whether or not these recruits, arriving here from all parts of the country for physical reexamination and the instruction to fit them for their duties, should at once be allowed to sleep, eat, and mix socially in garrison with old-timers and thus convey to them those contagious diseases which, unwittingly, they have brought with them. Would it not be well to consider favorably the system in vogue at the Naval Training Station at Newport, where there is a detention building for the newly enlisted men and where they are kept separated from the other enlisted personnel for a period of three weeks, or until the term of incubation for most contagious diseases is past? This method has met there with the greatest success in confining the outbreaks to the groups first affected. Since the beginning of the year nearly 300 recruits for the Marine Corps have arrived here and been physically reexamined. This is a fairly large number, considering the small size of the garrison, and will be greatly increased in the future if the plans are adopted for making this station a very large and important marine post, for which it is so well adapted. While the orders regarding bathing, hair cutting, and the proper disposal of their clothes as possible fomites is rigidly carried out, this is not enough for safety. Though apparently well, they may carry in their nasal and oral secretions and elsewhere the germs of communicable diseases, to be fully developed later on. The suggestion is in keeping with the most advanced views on the prevention of disease and is peculiarly applicable to large bodies of men in naval service. It is made with a full appreciation of inherent difficulties and increased expense but is believed to be deserving of investigation.

Malaria has been most uncommon as originating at the station, for of the 51 cases recorded for the year only 11 are attributed to local infection, 27 being traced to Panama and 13 to other sources. All told, 327 of the naval force were admitted for treatment.

Among the civil employees there were 133 surgical and 34 medical cases that were treated at the dispensary.

Naval station, Port Royal, S. C.—There being so few people attached to this station during the year, and the available working force of the yard so inadequate, that state of sanitation which should be maintained at all naval stations was simply out of the question. But, aside from a very few cases of infectious diseases, mild in character, the health of the station has been good. Malaria is the only really troublesome problem, and that, on account of the proximity of sources of infection rather than because of its presence within the limits of the reservation. No case of this disease occurred among the officers stationed there, or their families, and one case only among the enlisted force. In the outlying districts, however, malaria was very common. Dengue also prevailed in the neighborhood in epidemic form and, during the early autumn, several cases occurred among the enlisted force.

A very noticeable and valuable feature of this place is the excellent climate and apparent rarity of tonsillar affections. This fact, together with our gratifying experience there in the management of diphtheria, suggests its value, since the place has been abandoned for other naval purposes, as an isolation or quarantine station for the segregative care of large epidemics of this and other contagious or infectious disease. The character of the buildings and other features of the station are admirably suited to such a use, and could be easily and quickly adapted.

Navy-yard, Charleston, S. C.—The record of this station for the year presents little of interest from a sanitary or health point of view, as it is still largely in the hands of contractors and in a state of beginning development. Its sanitary condition, however, has been improved to the extent of installing a number of sewer lines and filling in several swamp areas. The health of the officers and their families has been excellent, but that of the enlisted force only good in comparison, owing to a large increase of malarial fever among them during the month of October, coincident with a heightened prevalence of the same disease among the inhabitants of the city of Charleston and neighborhood of the yard. One hundred and fifty-one sick days in the last three months of the year are credited to this disease.

The site reserved for hospital purposes is in the rear of the navy-yard proper, and is well elevated and covered with a thick growth of pines and other trees. As mentioned in that section of the report dealing with "New construction * * *" it is contemplated to make use of this reservation in the near future.

Naval station, Key West, Fla.—The number of sick at this station during the year was limited to 20, and all these cases, though mild in character, were accommodated and treated at the marine hospital.

The sanitary advantage of good water, and the absence of dust and mosquitoes is shown by contrasting the record of the station with that of the city, where water was scarce and the dust suffocating, and typhoid fever and influenza were common causes of sickness.

The health of Key West should be good, as the equable and moderate temperature and fine breezes are favorable, and there is no malaria; but little or nothing is done to take advantage of the natural conditions and, before the rains begin in summer, it is reported, the prevailing conditions are most insanitary. It is hoped and expected that, with the advent of the railroad and the growth of army and navy interests, means will be found to better the sanitation of the city and island in general, for once things are cleaned up and the disposition of waste products regulated and provided for and the dust and mosquitoes are banished the climate will insure good health and a low disease rate.

Rain is the only source of water supply for drinking and other purposes, and as the drought in the latter part of the year made it possible that short allowances of water would have to be prescribed, it seems important that a greater cistern capacity be provided against any future danger of scarcity. There is a plentiful downpour in the rainy season and more of this pure water should be stored.

The sanitary condition and health of Dry Tortugas, Florida, has been excellent, no sickness whatever having occurred among the enlisted men. The only recorded sickness at the station occurred among the children of the civil employees, who developed 2 cases of whooping cough and 4 of measles, all yielding readily to treatment.

Navy-yard, Pensacola, Fla.—The past year, succeeding the 1905 epidemic of yellow fever, was naturally one of preparation for the possible reappearance of the same disease in that entire section of the country. Mosquitoes were hunted down in every direction and all cases of fever were carefully watched and every precaution was taken in the management of suspicious cases. Owing to the careful management of the epidemic during the preceding year, however, no cases of yellow fever occurred either at Pensacola or at this station and the health record is very good, showing a daily average of 1.6 patients.

In the navy-yard, 2 cases of influenza, 1 of typhoid fever, 8 of malaria, 4 of mumps, and 2 of tuberculosis comprise the infectious diseases which came under observation. None of these cases was traced to local influences.

Until the hurricane of September 26, the sanitary condition of the yard and the outlying community of Warrington and Woolsey was satisfactory and the mosquitoes were kept under control; but the wreck and destruction and flooded conditions which followed that disaster more than counteracted all past efforts, and the problem of sanitary regeneration represented extensive work.

Improvement along this line has been progressive but slow, and at the close of 1906 there was still much to be done before the task of even recovering lost ground could be completed. Beyond this, many original sanitary defects and omissions require correction. The prison is most defective in every way and entirely unfitted for its purposes—damp and unavoidably dirty; the method of disposing of all kinds of waste is primitive and objectionable; and the insufficient storage capacity for drinking and other purposes exposes the station not only to the danger of a water famine but to possible disease in the consequent dependence upon an inaccessible and outside supply of questionable purity or upon surface water. The water from the well recently bored in the yard near the new power house contains iron, 4¾ grains, and sodium chloride, 4 grains to the gallon. It turns rapidly yellow from oxidation of the iron and is reported unfit for any except flushing purposes. Rain water is the only source of potable water, and generous provision, within the needs of the station at least, should be made for its storage. Moreover, as the rainfall is not a very great one advantage should be taken of all roof space to fill the cisterns rapidly. Among the other necessary provisions, a sewer system and proper lavatory accommodations for both the enlisted force and the civil employees are urgent.

Naval station, New Orleans, La.—The sanitary and health records of this station are very good. There were 46 admissions to the sick list out of a complement averaging 64, but all cases were benign in character and the majority of short duration. Infectious diseases were represented by 3 cases of malaria and 1 of measles. Digestive disorders and genito-urinary diseases were more largely concerned in causing disability than any other one class, though the number of cases credited to each is small. In spite of the fact that only 3 cases of malaria occurred among the naval personnel of the station, this disease must be considered as representing the particular menace to health, and yellow fever is a possibility.

Navy-yard, Puget Sound, Wash.—The health of the station and the sanitary condition of the yard and buildings were excellent, and no epidemic of communicable disease occurred. Of the 151 cases admitted to the hospital for treatment, 129 were readmissions. One hundred and eleven cases of sickness or injury among the civil employees were treated at the dispensary, the latter disability claiming 106 of the cases.

The surgeon of the station in his annual report considers at length the inadequacy, bad condition, and improper situation of the present sick quarters, and makes clear the need of better and larger hospital facilities. The steps which are being taken to meet this requirement have been brought to the Department's attention under the section of the Bureau's report relating to "New construction * * *."

The marine barracks is another feature of the station which seems to call for consideration. In so far as the sanitary condition of this building comprehends cleanliness and repair there is no criticism, but as regards capacity it is hygienically inadequate to the demands and is overcrowded beyond admissible limits. In view of the growing importance of this station and the urgent necessity of enlarging the accommodations for marines, it is believed that the best and most economic policy would be the construction of an entirely new barracks, of sufficient size, with quarters for officers, on the site selected and recommended by the board of officers appointed by the Department.

The principal problem of sanitary concern at this station, however, is the water. This has been made the subject of frequent tests and condemnatory reports by the medical officer and, in the late fall, by a board organized by the commandant under date of October 24, 1906. The yard well, which is at present the main source of supply, is believed to be contaminated by sewage from the town of Bremerton, and repeated chemical examinations of the water give undeniable proof of its contamination, whatever the source, so that it has been pronounced not only unsatisfactory, but a danger to the health of the station. Exemption from illness which could be attributed to its use is to be explained in part by official order to boil before drinking, but, more particularly, by the fact that Bremerton has thus far been remarkably free from diseases communicable through the water supply.

The board above mentioned recommended that at present all water for drinking purposes be boiled or distilled, and that as soon as possible the station water supply be taken from the Bremerton Water Company and the use of the station well in question be discontinued. The adoption of the board's recommendation would seem wise and urgent.

Navy-yard, Mare Island, Cal.—During the past year the general health of the yard has been good; no epidemics have prevailed and no cases of illness that could be directly attributed to unsanitary conditions. With the large number of recruits that are constantly arriving it is to be expected that occasionally some contagious disease will develop, but with the exception of comparatively few cases of measles nothing of an infectious nature has been encountered. Early in January a case of measles developed in a recruit at the marine barracks, which was evidently contracted before his arrival here. The patient was at once transferred to the hospital, and the quarters he had occupied were disinfected, but owing to the fact that this disease can be communicated before the person himself is aware of his illness, other cases continued to appear from time to time during the ensuing three months. There were twenty in all, but none were of a severe type. The consideration of provisions for a period of segregative observation of recruits is as pertinent at this station as at Norfolk.

No cases of a contagious nature have appeared among the civil employees in the shops so far as it has been possible to ascertain, though in accordance with Executive order of February 28, 1906, in reference to tuberculosis in Government departments, an inspection of all the shops and offices of the yard was made. Investigation did not reveal any cases of tuberculosis. Printed notices supplied by the Department were posted in prominent places, receptacles for expectoration supplied, and spitting upon the floors prohibited. Foremen in all the shops were cautioned to report any suspicious cases at once. Only one such case was reported and this upon examination proved not to be tuberculosis.

During the past year the daily average of men employed in the various shops and offices was 1,611. This figure does not include the contractors' forces engaged in construction of the dry dock and setting up of the traveling crane. Six hundred and sixty-three accidents of various degrees of severity have received "first aid." Only one accident proved fatal; in this case a man was instantly killed by a large block of wood falling upon him and crushing his skull.

There have been no changes in the yard during the past year that are of interest from a sanitary standpoint. Some temporary repairs and improvements have been made in the marine barracks, but these buildings are all old and of an antiquated type, and do not afford sufficient accommodations for the number of men that are at times stationed at this post. There are regular sleeping accommodations within the building for 215 men; by crowding, 269 can be accommodated; any number in excess of this must be put into tents. The average number of marines in the garrison has been 389; the largest number at any one time was 637. During the past year 1,069 marine recruits were received at the marine barracks. Of this number 60 were rejected upon reexamination as physically disqualified. There has been a decided improvement in the character of the recruits received compared with the preceding year, showing more care on the part of physicians making original examinations or better understanding as to requirements of the service.

In the naval prison there are regular accommodations for 116 prisoners; the highest number at any one time was 122; the daily average for the year was 92. The prison is clean and in good sanitary condition. There has been very little sickness among the prisoners.

NAVAL TRAINING STATIONS.

Newport, R. I.—The general health of the station was very good and the cases of sickness gratifyingly few, especially so in view of the fact that the average complement was larger than ever before, having been 1,642. The percentage of sick was only 1.739. Four thousand five hundred and twenty-four apprentice seamen were received on the station, of whom 97 were discharged from the service by medical survey.

The sanitary condition of the station as a whole was entirely satisfactory, but barracks B falls far short of proper hygienic requirements in respect to its ventilating system and lavatory accommodations. Ventilation is reported as poor also in the ward for the sick of barracks C. Beyond these few defects, which should be remedied, there is no criticism to offer. The sanitary condition of the ships attached to the station was also good in every particular.

The following infectious diseases appeared among the apprentice seamen: Influenza, 16; typhoid, 16; pneumonia, 45; measles, 143; mumps, 226; scarlet fever, 1; and cerebro-spinal meningitis, 6. Of this last-mentioned disease 4 of the cases occurred at barracks B, on March 3, 13, and 26, and October 17; and 1 at barracks C, March 21; 1 on the U. S. S. *Reina Mercedes*, April 18. The first 3 cases in barracks B occurred among a draft from Norfolk, Va.; the last case at barracks B had recently come (eight days) from the east wing of barracks C, where apprentices, among whom the epidemic of 1905 first appeared, had been quartered and where other cases had developed. All of the patients were transferred to the naval hospital, Newport, R. I. The first 4 cases died. The case appearing on the U. S. S. *Reina Mercedes*, April 18, made a good recovery, as did also the last case appearing at barracks B, October 17, which was a very mild type. Every precaution was taken, pertaining to both quarters and personnel, to limit the epidemic.

The new detention buildings which were nearing completion at the close of 1906 are now being used, and it is confidently expected that these valuable provisions for safeguarding health at the very portals of the naval service, the first of their kind in the Navy, will fulfill in every respect the purpose for which they were constructed.

Norfolk, Va.—The health of the station during the last half of the year was excellent, due principally to the fact that the old insanitary barracks buildings were not occupied. The medical officer reporting on the station believes that, should the recruits be moved into these buildings, it will, without doubt, result in a largely augmented sick list, with danger of epidemic tonsillitis, pneumonia, and influenza, to say nothing of the probable introduction of more serious forms of infection, by crowding newly enlisted men from all sections of the country into such insanitary quarters. In his opinion the present barracks buildings should be removed as a menace to the health of the station.

During the first three quarters of the year there were 6 cases of cerebro-spinal fever, 1 case of chicken pox, 1 of smallpox, 179 cases of mumps, 33 cases of pneumonia, and 46 cases of measles, which latter became epidemic among the men on the U. S. S. *Richmond* and in barracks No. 3. As smallpox had been quite prevalent in this section, and as the disease was in close proximity to the station in Berkley, a rigid quarantine was held against that place until word was received from the health officer that no new cases had developed for a period of twenty days.

There was no illness attributable to food or water supply of the station, the 18 cases of enteric fever recorded having been due to infection on liberty or from disobedient use of water from the city supply pipes on the reservation.

A summary of the year's work shows the number of cases admitted to the sick list to have been 1,784, out of an average complement of 2,244. Four thousand and 47 recruits were reexamined; 321 candidates were examined for enlistment, only 122 of whom were accepted; and 128 were examined for reenlistment.

A number of sanitary improvements were made and others are contemplated. There is a pressing need of a permanent camp on St. Helena Reservation and suggestions contemplating its establishment, including a sanitary water-closet system convenient to the camp site and improvements to the subsistence buildings, were briefly outlined by the medical officer of the station. Special consideration of this matter is invited, as it would seem a simple and effective measure for the maintenance of good health among the very large number of young recruits who pass through the station.

San Francisco, Cal.—The sanitary condition and health of the station were good, some unhygienic features of the main barracks buildings, such as inefficient heating facilities and consequent general damp state of the barrack rooms, being alone criticized. The overhead system of heating is to be supplanted by low-placed steam radiators, and this change may partially affect the necessary improvements in temperature and humidity.

The average complement of the station was 586, including 57 marines; the percentage of sick was 0.67. The following diseases were the more important contributors to this record and fairly represent the health conditions of the station during the year: Erysipelas, 1; boils, 5; measles, 28; influenza, 66; mumps, 2; scabies, 27; pneumonia, 11; bronchial catarrh, 4; acute bronchitis, 123; pleurisy, 1; cerebro-spinal fever, 1; and tonsilitis, 110. It will be noted that catarrhal affections of the air passages were vastly in the majority, being responsible for 314 out of a total of 379 cases from all causes. There can be no doubt that these affections of the air passages, so commonly occurring among those who occupy the main building, are largely attributable to the dampness of the quarters. The moisture-laden winds that frequently blow over the island, as also the numerous heavy fogs, are additional causes of the respiratory diseases with which so many of those stationed here are affected.

UNITED STATES MARINE HEADQUARTERS AND MARINE DETACHMENTS.

Marine barracks, Washington, D. C.—Despite all assurances the new barracks building at the southern exposure of the parade ground were not ready for occupancy in 1906, and in consequence the medical quarters and the cells and guardroom, in the old insanitary and inadequately heated buildings, were continued in use, pending the transfer of the new building. Otherwise the monthly inspections showed the sanitary condition of the public buildings, the drainage, the water supply, the sewerage, the clothing and habits of the men, the character and cooking of the food, all to be very good and free from anything liable to cause disease or induce physical deterioration.

During the year a large number of recruits were received at this post for reexamination and final acceptance prior to outfitting. Two thousand six hundred and four physical examinations and reexaminations were made, of which 31 were recommended for discharge for a variety of disabilities existing prior to enlistment.

Vaccination received careful attention and 1,512 men were vaccinated, the others affording satisfactory evidence of successful vaccination while in the service.

The average number of officers and men stationed at the post was 306, affording a daily average sick list of 6, despite the fact that through lack of facilities for the care of the sick 177 cases were promptly transferred to the naval hospital.

Among the number were a few cases of contagious diseases, including chickenpox, 2; measles, 2; whooping cough, 1. There were many cases of tonsilitis, in some of which there was a suspicion of diphtheria, but the specific bacillus was not demonstrated in a single instance.

No cases of enteric fever originated at this post.

Camp Columbia and outposts, Cuba.—On September 25, 1906, owing to critical political conditions in Cuba, seven ships of the Navy and 2,600 marines were ordered to proceed to Habana, and on September 29 the expedition arrived at that port. Disembarkation of the marines began immediately. Medical organization and equipment were provided by the several ships from the personnel and supplies on board prior to landing, and these were sufficient for the probable needs of the near future and until additional stores could be sent from the United States. A few detachments of the brigade were immediately dispatched to various disturbed districts, but the major part of the command was concentrated at Camp Columbia. And from here, as occasion required, other detachments were sent out to establish new posts until eventually every province in the island, except that of Pinar del Rio, was represented in the division of the force. This distribution, all posts being separated from each other and headquarters by long distances, created the need of making medical provision for every independent section or company, and, although there were only eight medical officers, the demand was satisfactorily met by detailing a hospital steward or hospital apprentice, first class, to attend the smaller posts. The quarters for the men and the available sick accommodations at these different points were naturally of varying and usually a makeshift character, except at headquarters, where the regular naval field hospital outfit was provided. The performance of this field medical service has in every instance been satisfactory, the medical officers visiting those outposts adjacent to their respective stations from time to time, and all cases of more than trivial sickness being sent in to the larger posts for further treatment and disposition. Some malaria and skin diseases and a few isolated cases of graver illness are recorded, but on the whole and in spite of the prevalence of typhoid among those about them, and the existence of yellow fever in various localities, the health of the marines in Cuba has been excellent.

Camp Elliott, Isthmian Canal Zone.—The command of United States marines serving on the Isthmus of Panama has not, since the change of station to Obispo, maintained that gratifying state of freedom from disease which characterized its health when located at Empire, and this is particularly noticeable in view of the fact that health conditions have so strikingly improved in the Canal Zone and that the marines should, under ordinary circumstances, it may be reasonably assumed, have shared with others the benefits resulting from the splendid accomplishments of the health department of the Isthmian Canal Commission.

During the past year, July and August, representing the period of greatest rainfall (38.51 inches), were productive of the largest number of sick and brought the daily average of patients up to 18.38, which, for a detachment only 253 strong, must be considered high. In this connection, however, it is to be remarked that malaria was the chief cause of sickness, 796 out of a total of 1,087 admissions to the hospital being victims of that disease, probably as the inevitable consequence of tropical service in constant close proximity to an extensively infected native community. The presence of malaria, under the existing circumstances, does not reflect upon those responsible for formulating and enforcing proper health rules, other than that measure known as quinine prophylaxis, which, though of established value, was not constantly carried out, nor does it necessarily impeach the general sanitary condition of the camp. As a matter of fact the camp was officially reported as having been in good sanitary condition and untiring vigilance was exerted to this end, particular watchfulness being exercised to keep the reservation free from breeding places for mosquitoes. The outlying districts, however, seem to have been a prolific source of the malaria-bearing genus, for the Bas Obispo and Pedro Miguel rivers, which offer it such favorable breeding places along their banks at certain seasons, pass within "Anopheles flight distance" of the camp. Anopheles mosquitoes, therefore, were not only abundant in the contiguous native settlement, but migrated into camp, and the medical officer, probable correctly, attributes infections to exposure on night sentry duty and evening liberty, which the men usually spent in the town below camp, owing partly, it is believed, to the lack of adequate provision for their diversion within the limits of the post. This always becomes a serious deficiency among troops subjected to the demoralizing influences and insanitary tendencies of the Tropics, and nothing that would tend to keep them within the limits of their own well-conditioned territory during leisure hours should be disregarded or neglected.

The doors and windows of all quarters are screened and many improvements of a permanent character, in the interest of health, comfort, and decent surroundings, have been made; but several of the buildings are still badly out of repair and need much attention before they can be regarded as mosquito-proof and properly habitable. Cracks in the floors and other parts admit these insects freely and a house that has a loophole of entrance in the Tropics might almost as well throw its doors wide open.

The hospital of the camp is not all that it should be, either in capacity or construction, and it is hoped that this important building will be given deserved and needed attention in the near future.

Sitka, Alaska.—The record of this post from a health standpoint has been good. There was an entire exemption from serious illness of any character and no one disease, in the generally understood sense of the term, is deserving of special comment, either as regards its interest per se or as an indication of morbific influence peculiar to the station. Nine cases of alcoholism, however, were admitted to the hospital for treatment and these contributed the largest number of sick days from any one cause, which rather unusual state of affairs is to be explained by the fact that the medical officer holds the opinion that those suffering the consequences of intemperate indulgence in intoxicating beverages should be treated as patients and restored to duty only when in condition to endure and understand the meaning of punishment.

An extension to the barracks, giving space of better hygienic proportions for sleeping quarters, and some notable modern improvements in the lavatory and toilet accommodations were made during the past year, so the post is now in excellent sanitary condition and the marines most comfortably provided for.

Midway Islands.—The small command at this station has experienced a year practically free from sickness, but this is the rule rather than the exception, as the climate is ideal, the water pure, and the soil (sand) has never been infected and probably never will be a fertile spot for germs, owing to a large percentage of lime in its composition. This absence of medical interest in the record for 1906 applies equally to the community of the cable company's employees, who are dependent upon the medical officer of the detachment for professional services. The only injury was the accidental wounding of one of these employees by a deflected bullet, which fractured the tibia of the left leg, but recovery was satisfactory and uneventful.

The only two considerations of importance with regard to duty on this island are diversion and comfortable living, and the compensation for the almost complete isolation which is entailed, and the fact that these men perform the duty uncomplainingly, should excite a proper attention to the simple and inexpensive requirements of comfort and contentment there on the part of the Government. At present there are no adequate provisions to meet these needs, and they are regarded, under the circumstances of isolation on a small island, as particularly necessary to mental and physical hygiene.

Communication with the outside world by boat is had on an average of once every three months or four times a year; but usually all the trips are made from April to November with a long interval from November to April. This fact should indicate the necessity for a liberal supply of books and other reading matter, as well as material for outdoor and indoor games, with the addition of musical devices or a phonograph.

The quarters are a makeshift in the extreme, only one building—that loaned by the cable company for canteen purposes—being well built and comfortable. The other three are rudely constructed affairs, erected by the marines out of odds and ends of lumber and driftwood. Several tents are in use to meet the need of mere housing. Two or three plain substantial wooden buildings—one as a barracks to accommodate the entire command, one for use as a mess hall and kitchen, and perhaps one for a club—all well ventilated and insect proof, would fulfill the requirements. The only outlay absolutely necessary would be the building material, as the men no doubt would find agreeable and healthful employment in the work of construction. Portable houses would meet the existing demands with more satisfaction and expedition.

Legation guard, Peking, China.—No noteworthy changes affecting the sanitary considerations of this post have been made, nor is there any record of special morbific influence requiring description.

The company of seasoned marines on duty there during the greater part of the year was relieved on September 19, 1906, by one of about the same numerical strength, but composed largely of recruits, and an increase of minor ailments growing out of inexperience and a lack of familiarity with service conditions resulted. Nevertheless, the health of the command was good. No typhoid, dysentery, or acute contagions or infections were contracted during the year, except 1 case of pneumonia, 5 cases of syphilis, 45 cases of gonorrhoea, and a few cases of ringworm, scabies, and tonsilitis. The number of cases of the latter disease was conspicuously diminished by attention to the disinfection of the common drinking cup, and skin affections were controlled by proper prophylaxis; but venereal diseases constituted the serious problem here as elsewhere in the service. The demand for surgical treatment in the command was not extensive, including only five major and twenty-one minor conditions. All operations resulted satisfactorily. Many operations of varying magnitude were performed upon the natives by the medical officer with equally happy results.

Polloc, Mindanao, P. I.—Since this station was reestablished, February 20, 1906, the general health of the command has been excellent and no contagious or infectious diseases have occurred.

The living accommodations are rather primitive, but in good repair, reasonably comfortable and clean, and every attention is given to sanitary requirements, both in disposition and maintenance of the camp. Abundant fresh meats, bread, and vegetables are obtained at the army post at Parang, about 2½ miles across the bay, but the only source of drinking water is an old well of very questionable purity. Indeed, the situation with respect to possible pollution, and chemical analysis of the water, give reason for suspicion. However, all water for drinking and culinary purposes is boiled, and no ill effects from its use have resulted.

NAVAL STATIONS BEYOND THE CONTINENTAL LIMITS OF THE UNITED STATES.

San Juan, P. R.—The health record of this station offers nothing of special interest, as the sick list has been surprisingly small and no epidemic has occurred among the naval force, though infections and contagions have been present in the city. During the fall typhoid fever became epidemic among the civil inhabitants and claimed many victims among the Americans, but not a single case occurred in the naval force at San Juan.

As in all tropical countries, parasitic diseases are a constant menace to health and a close observance of the rules of sanitary living is necessary to avoid them. But in spite of every precaution, apparently, they do occur, and many men required treatment for one or another infection of this class.

Venereal diseases are now less troublesome than heretofore, as the result of the steps dictated by economic considerations as well as those of health. The local health authorities have made strenuous and successful efforts to rid San Juan of a bad reputation as regards venereal diseases, which was so deservingly acquired in the past.

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The sanitary condition of the station continues good at the price of a persistent watchfulness that the degenerating influence of the Tropics shall not gain headway and no case of illness can properly be attributed to preventable causes which come under naval medical control.

Culebra, P. R.—The annual sanitary report by the medical officer, Surg. H. C. Holcomb, U. S. Navy, is an exhaustive and interesting and well-founded exhibition of existing conditions at this station, and it shows a deplorable neglect of almost every sanitary dictate, certainly the more important ones concerned with the disposition of camp appointments, such as proximity of kitchen and latrine; the supply and storage of water; the protection and preservation of food; the disposal of garbage; quarters; and the well-recognized measures against insect-borne diseases, etc.

Medical Inspector H. E. Ames, U. S. Navy, reports similar observations, and in discussing the sanitary situation of the island he enlarges upon a feature touched upon by Surgeon Holcomb, viz, the importance, on sanitary grounds, of placing the whole island under the control of the Navy Department. Malaria and parasitic diseases abound, and epidemics of the more serious infectious and contagious diseases often occur among the natives; but until the Navy bears a more authoritative relation to the island population than exists at present, it will be impossible to bring about the desired sanitary reforms, and the natives will continue a grave menace to the health of the station.

The small size of the station, or its present slight degree of importance, should not militate against improvement. It is frequented by the ships of the fleet, and a force of officers and men are constantly kept there, which are sufficient reasons for putting it in the very best condition. The requirements are evident, as shown by the reports from the station.

With the exception of the prevalent malarial infections the health of the station has been very good. Out of a total of 1,641 sick days, 851 were due to malaria. The diseases of the nutritive apparatus come next with 52 admissions and 222 sick days. Injuries gave 18 admissions and 134 sick days. Diseases of the genito-urinary organs gave 15 admissions and 87 sick days. It is worthy of note that of the venereal diseases contracted on the island during the year, there was but one case each of gonorrhea and chancroid. All classes of disease other than those above mentioned contributed less than 30 sick days for the whole year.

The station ship, U. S. S. *Alliance*, is in many respects, particularly ventilation, not suited to the climate, and, if it is retained as such, should be altered to give more light and a freer circulation of air, so as to secure a more comfortable temperature in the between-deck spaces. The personnel of the ship has enjoyed a noticeable exemption from malarial infection as compared with those living on shore, only 183 out of 791 sick days being due to this disease. Injuries contributed the largest number of sick days for any one cause. Thirty-four admissions are recorded with an average of 6.7 days disability for each.

The food problem here, as in most of our isolated tropical stations, becomes of prominence, and the character of the food is responsible for many digestive disorders. The trouble seems to be the scarcity of green foodstuffs and fresh provisions generally, with the possible exception of fruit, and on the other hand the necessary consumption of meat when it is too fresh, tough, and hard to digest. The result is a diet too heavy for the atonic state of digestion, so common to tropical life. The need of efficient cold storage at this and other similar stations is apparent.

Guantanamo, Cuba.—The need of sanitary improvements at this station are very striking and the demands are extensive, as clearly and forcibly pointed out in the reports of the medical officer on duty there and the fleet surgeon. It is believed that the station, from a meteorological or climatic and topographical standpoint, is healthful, but few steps have been taken to make the most of these natural conditions. It is surprising that so little weight has been accorded such a universally acknowledged feature of large establishments, employing hundreds of laborers and maintaining a considerable naval force, and the present and future importance of the station urge immediate and complete correction of such grave defects as are represented in the question of food and water supply; number, construction, and location of quarters; means to the efficient care and authoritative control of sickness; general sanitation of the reservation; and, as pointed out elsewhere in the report, hospital and isolation camp provisions for the naval personnel of the station and visiting ships. Under the conditions which now obtain it is impossible to handle the situation properly. There can be no assurance therefore of the continued good health which has been enjoyed during the past year. The average complement of the station was 280 men and officers, practically all of whom lived on the station ship, which accounts in great measure for the small percentage of sick (1.09).

The station ships, U. S. S. *Monongahela* and U. S. S. *Amphitrite*, are, however, far from being suitable for the duty on which they are employed, and if no better provision for the housing of the force on this station is available or contemplated in the near future, the U. S. S. *Monongahela*, especially, should be made more hygienically habitable in point of ventilation, light, arrangement, and temperature of the living spaces. It is appreciated that little can be done with the U. S. S. *Amphitrite* in these directions, which suggests the urgent desirability of constructing proper quarters on shore for all hands, and the money which might be expended on the U. S. S. *Monongahela* would not only be spent to better purpose on such quarters, but reach much further. In this connection it is well to remember that good health in this climate depends to a marked extent upon comfort and contentment as well as upon hygienic living and sanitary environments.

As for the large number of laborers who must be domiciled and cared for on the naval reservation, charitable, humanitarian, sanitary, and plain business reasons all combine to attract attention to their needs, and the requirements of the station in relation to them, so that they may not continue to be, as now, an active menace to the health, not only of their own scattered communities, but to the officers and enlisted personnel of the station.

Honolulu, Hawaii.—The health and sanitary condition of this station, including the station ship U. S. S. *Iroquois*, during the past year has been excellent.

The only diseases worthy of note on the island are plague and dengue, but the former has not appeared among the naval force. Plague occurs about twice a year in mild epidemics among the Orientals, but the board of health has in the past confined it to the location of its outbreak and the city has not been threatened. On May 8, 1907, however, one case was reported within the limits of Honolulu, about a mile and a half from the naval station, and proper steps were taken to guard the naval personnel. Dengue is a frequent cause of illness at the station, but it appears to be a very mild type. This disease is now regarded as within the range of prevention, its classification with yellow fever and malaria in point of transmission by mosquitoes having been determined.

The Hawaiian Islands, together with the rest of Polynesia, to say nothing of Macronesia and Micronesia, will in the near future become a place of vast importance in the world's sanitation, for they are stepping-stones for the introduction of yellow fever in the thickly populated Orient. The stegomyia mosquito is already present in the Hawaiian Islands and awaits only the appearance of a case of yellow fever to create an epidemic.

The recent establishment of a line of steamers in direct communication with Mexico makes this possibility imminent, though the Panama Canal represents the real danger of the future. The local board of health, however, has for some time foreseen this danger and is taking radical steps to exterminate all mosquitoes. The naval authorities have fallen in line with the others as regards their responsibility, and, upon recommendation of the medical officer, the commandant has issued suitable regulations to prevent the propagation of mosquitoes at the naval station.

The facilities for treating the sick and injured are, owing to the size and equipment of the dispensary, limited to the care of cases of minor character. All serious diseases and major operations, requiring careful nursing or special diet, must be sent to the Queen's Hospital, where a charge of $1.50 a day is made. This seems the most economical arrangement so long as the station has a small complement of officers and men, but in the event of the establishment of a large yard and station at Pearl Harbor the necessity for a suitable naval hospital at once presents itself for consideration. There are two available locations for a hospital site—one to the eastward of the "Punchbowl" and the other at Pearl Harbor, the latter being the more desirable from every point of view.

Guam, Ladrone Islands.—The naval station comprises the entire island, but by reason of its extent and the fact that the major part of the population is in the town of Agaña this town constitutes the naval station proper.

The health of the officers and enlisted force at the station is characterized as having been good during the year. No epidemics have occurred, and no serious infections, other than a fatal case of tropical liver abscess and two cases of amœbic dysentery, cured by treatment, have been seen among the white enlisted forces.

The prevailing diseases of a disabling character affecting the enlisted force in Guam are included in the following classes: Tropical skin diseases, gastro-intestinal, venereal, brain and nervous system, and sun effects. Of these, there were 100 cases out of a total of 167 admitted for treatment. Thirty-three were "invalided to hospital" and 8 were "invalided from the service." This seems a large percentage of disabled, 41, and 1 death, making a total of 42 in an average complement of 135.11 men, but the term "good" as applied to the health of the station was selected on broad considerations. Gonorrhea was a large incapacitating factor, but it must be considered that these cases were in most instances brought from other places, Japan, for instance, and do not represent the extent of that disease in Guam.

With the better understanding of tropical requirements, life on the station is being conducted on a more rational basis, and the result is a reduction in such sun effects as headaches, neuralgia, nervousness, and neurasthenic conditions, particularly among the officers and their families. The habits of the men, however, as the length of their stay in the Tropics increases, become worse, and their indulgence in alcohol is progressively intemperate. Food and clothes and drinking water are hygienically satisfactory, but the supply of bathing water is inadequate, and the enforced use of filthy river water for the purpose is regarded as responsible for much skin disease. This defect needs correction, as does also that respecting the marine barracks, which is insufficient for the number of men it is required to accommodate. Otherwise the public buildings are in good sanitary condition, including drainage and sewerage.

The island population represents the greatest call upon the time of the medical officers, and the natives, as heretofore, are entirely dependent for medical and surgical relief upon the Navy. This service, however, is not a mere charity, but constitutes a legitimate charge in the health interests of the naval community, and affords an example that should be imitated in the case of each of our small island stations to the end that better sanitary conditions may be made possible.

The general health of the native population has improved wonderfully during the year, and a powerful factor in bringing this change about has been the publication and enforcement of various executive orders of sanitary import.

The prevailing diseases among the natives embrace the following: Gastro-intestinal diseases, particularly parasitic, eye diseases, skin diseases, respiratory diseases, gangosa, leprosy, chicken pox, yaws, and tuberculosis, pulmonary and general. One thousand seven hundred and seventy-three cases were contributed by one or the other of these several classes, which have been set down in order of numerical importance. The anopheles mosquito is not found in Guam and malaria does not exist. The *Stegomyia calopus* (yellow-fever mosquito), however, is thoroughly distributed over the island, and its presence is a substantial warning against that future pointed out in our consideration of Hawaii.

The cases of leprosy and gangosa which are demanding attention now number 113 and 97, respectively. These cases have been segregated as far as possible with the money available, but it will require $5,000 for land and improvements and $15,000 for annual maintenance, if we seclude all cases of the diseases, as should be done. This measure will require an appropriation from Congress, for the island treasury can not do more than support the present colonies for a period not exceeding one year.

Hospital accommodations are greatly inadequate, and for such as they are the sick owe gratitude to private organizations, as far as the buildings, furniture, and maintenance are concerned. The funds upon which the support of the Susana Hospital depended are now about exhausted, however, and the governor will take it over as an island government hospital, as in the case of the Maria Schroeder Hospital. The Navy must make proper hospital provisions in the near future, as pointed out under the subject of "New construction. * * *"

The sanitary condition of the station ship, the U. S. S. *Supply*, is satisfactory.

Tutuila, Samoa.—The sanitary condition of this station during the past year has been entirely satisfactory and the health record of the naval force good. There were 160 admissions, and all sickness was of a lingering nature. One case of measles occurred in the person of the pay clerk of the station ship, who was the only one permitted to go on board a steamer which had been quarantined on account of the disease. This seems to have been a necessary exposure, as she had brought numerous supplies for the station.

The Government buildings are, with the exception of the hospital, in good sanitary repair, but as all but the barracks for members of the native guard and the coal sheds are constructed of wood, which rapidly deteriorates in the moist climate of Samoa, they need constant attention.

The hospital building is a most dilapidated makeshift, having been converted from an old trader's store, built over thirty years ago, and, although everything has been done in the way of patching to put it in mere working condition, it is reported as "almost falling to pieces from decay" and vermin infested.

As in Guam, the greatest demand for medical services and supplies comes from the natives, who are a legitimate government charge in respect to health and all that that implies. At the hospital alone 222 surgical cases and 94 medical cases of varying character and severity were treated, and the morning outpatient clinics are well attended by those complaining of minor disorders. During the day patients are constantly presenting themselves for treatment, and over 200 house visits and several journeys around the island of Tutuila, dispensing drugs, were made during the year. In addition to all this the islands of the Manua group were visited by the station medical officer in March, a stay of one week being made and all the sick at the time treated. The people of these islands, also under the protection of the United States, have recently purchased a small schooner, which makes regular trips to Tutuila, a distance of 60 miles, and the sick of this isolated community are by this means more systematically cared for. Over 1,000 natives were vaccinated during the past year, so that, with the exception of a very few, all the natives of American Samoa, a little over 6,000, have now been given protection against the possible invasion of smallpox. Maritime quarantine regulations are also carefully carried out, to the end that no disease foreign to the people of Samoa may be introduced.

A valuable provision for the sanitary welfare of the station was the erection of a crematory, in which all the refuse from ship, quarters, hospital, and grounds is burned daily. Heretofore most of this refuse was dumped into the harbor and in a short time was washed up on the beach, so that its effective disposal was a difficult problem. The matter of installing an electric-lighting plant, which could be economically run in connection with the cold-storage plant, is represented as a needed hygienic provision. Other desirable improvements are apparent, but do not now press for serious consideration. The health record and sanitary history of the station ship, U. S. S. *Adams*, present nothing of special interest, beyond what has already been set down.

Cavite, P. I.—The health record at this station for the year is good, the average percentage of sick being 1.288. The diseases of greatest prevalence are classified in order of numerical importance under: General infectious, 1,091; cutaneous, 322; venereal and genito-urinary, 305; digestive, 199; circulatory, 191, and nervous, 169. The greatest amount of sickness occurred during the months of April, May, and June. The more serious cases and many of the milder ones were sent to hospital on account of the limited space at the dispensary and its proximity to the ship-fitting shops; otherwise, the number of sick days, which total 2,873, would have been far greater.

The sanitary condition of the station proper has, with minor exceptions, been satisfactory, but this is far from true of the adjoining city of Cavite, where many naval officers and some enlisted men are compelled to seek quarters, as is also the case with all of the American civilian employees of the station. The sanitary needs of Cavite, according to all reports, constitute a tremendous and serious problem and are of vast importance to the health of the naval force; but, as naval authorities are without power or means to correct the menacing conditions outside of the station's walls, it is urgent that everything possible be done within, as regards material hygienic provision, and to remove at least the naval personnel from an environment of disease influences. Thus only can we minimize the danger that the station may at any time be invaded by an epidemic of grave character.

Suitable quarters in such sanitary surroundings as the reservation affords should be erected for all the naval officers and for the many enlisted men who are ordered to duty at the naval station, Cavite.

A steam laundry plant should be installed at this naval station, on account of the numerous cases of skin affections, probably in large measure caused by infection from Filipino laundered clothing. No supervision of the source of the water used by the native lavanderos, nor the condition of the houses, the hands, and other objects with which the clothing comes in contact, is possible under existing methods. Cholera, smallpox, and plague have been prevalent in all the surrounding towns and in Cavite at different times, and may at any time break out again. Dhobie itch is very common at nearly all times of the year. Many of the patients suffering from this affection, however, not being admitted to the sick list, are not included in the above figures expressing the number of sick days due to cutaneous diseases. During the entire year the number of sick days due to skin diseases was 11.2 per cent of the total sick days, and during July, August, and September this percentage was 26. During August it was 40 per cent.

It is recommended also that a baking plant be established at this naval station, in order to supply bread to the many naval vessels and the naval station. At present bread is procured from a Chinese baker. In cholera epidemics there is constant danger of infection from the use of bread purchased in the city of Manila or in the city of Cavite, for it is known that the surface of bread may be an excellent culture medium for the cholera germ. Dysentery, typhoid fever, and other diseases may be and doubtless are contracted in this way. The rule that all bread be toasted will not be, and is not, practiced in many cases, and it is impracticable to do so on a large scale. Furthermore, the injurious effects of excessive amounts of alum may be avoided if the bread is made at the naval station.

Olongapo, P. I.—Aside from the general enervating effect of all tropical latitudes on the white races, Olongapo is believed to have one of the healthiest sea-level climates in the Philippine Islands, and sickness should be rare.

The important work of improving the sanitary conditions at this station was somewhat retarded during the year for reasons beyond the control of the local authorities, but some progress in this direction has been and continues to be made, so that, under the circumstances of reasonable health, the absence of any particular and serious menace to health, and the authorized supervision of the general sanitary conditions of the town by a medical representative of the Navy, the sanitary prospects are bright.

The total number of admissions in 1906 was 1,124, including both medical and surgical disabilities, and these cases contributed 8,972 sick days. Many Filipinos were also treated either for diseases or surgical conditions, the latter consisting largely of frequent more or less severe accidents incident to the active work of construction at the station. Gunshot wounds were also numerous. The principal diseases and those responsible for the largest number of sick days, arranged in order of numerical importance, are: Simple continued fever, malaria (benign), dengue, simple diarrhea, and boils. No large epidemics have occurred on the reservation or in Olongapo. One case of mild variola was admitted in January and promptly isolated; he was a recruit, and, it is thought, probably became infected at Honolulu while en route. All men in the garrison from which he was removed, who could not show a good recent scar, were immediately vaccinated. Five cases of measles and, later, 6 cases of mumps were admitted during May and isolated. These men were all recruits who had just arrived on an army transport. Malaria and dengue cases were admitted during every quarter of the year, but were more prevalent during the dry season. Malaria is usually traced to the marine rifle range at Maquinaga or to exposure while the men are on "hikes" in the surrounding country. The station proper is rather free from mosquitoes, but sleeping nets are, nevertheless, employed as a wise and not irksome precaution. True dysentery is rare, but diarrhea is common during the hot season. Skin boils, abscesses, and ear affections are rather prevalent at all times.

The dental treatments totaled 5,845 cases.

Whether or not Olongapo is to be the most important naval base in the Philippines, sanitary improvements and the installation of hygienic provisions must go on as rapidly as possible, for the vital interests which they represent should always be safeguarded early in the establishment of a large station, regardless of its relative importance, which demands the services of a considerable body of men in a climate to which they are neither racially suited nor acclimated.

The sanitary and hygienic needs of the station still to be met include: A crematory for refuse and garbage, electric lighting plant, sewers and modern bath and water-closet accommodations, a laundry, and proper sick quarters. Steps are being taken for an abundant supply of good water. The demands for laundry work are now being partly satisfied at this station by a Chinaman who is allowed to utilize one of the old station buildings for his purposes. His work is supervised by the medical officer, and through his efforts a sanitary process is carried out. But this laundry can only attend to a small portion of the washing to be done, and many men have to send their clothes out to native washwomen. The danger of this practice is similar to that at Cavite, and the need of a laundry plant quite as urgent.

UNITED STATES NAVAL HOSPITALS.

The hospitals receive and care for the sick and injured of the service from all sources and are not usually contributory to disability, and, as their respective needs have been considered in the section of this report dealing with "New Construction * * * ," it is deemed sufficient that in this section the probable demands upon capacity, as expressed in the source of the sick, and the amount of work accomplished at each, together with a general statement of repairs needed for their individual maintenance in a state of running order, be submitted for the Department's information. All details of the minor improvements made or itemized statements of expenditures necessary for the preservation, sanitation, and structural soundness of the institutions would occupy too much time and space and are therefore omitted.

All the hospitals receive sick and injured from such cruising ships as may visit the station at which they may be located or any that may come to their vicinity, and the probable extent of invaliding to any one hospital from such varying sources will depend largely upon the climate peculiar to the locality, the season, the size and importance of the adjacent yard, and upon the suitability or popularity of the neighboring waters for purposes of maneuvers, drill, and target practice.

Portsmouth, N. H.—The usual sources of those patients admitted to this hospital for treatment are: The navy-yard, including the marine barracks; the prison ship, U. S. S. *Southery*, and the yard craft. Under normal conditions the demand for hospital accommodations has not overtaxed existing capacity, but on the occasions of trying weather and the presence of an unusual number of visiting ships there has been a large increase of patients. The total number of cases treated during the year 1906 was 133, and of this number 100 were medical cases and 33 surgical cases, the latter embracing 8 of major and 25 of minor character. All were operated upon with uniform good results, one being still convalescent at the close of the year. There were no deaths. The current expenses for authorized repairs and improvements during the fiscal year 1907 were insignificant.

Chelsea, Mass.—The usual sources of patients admitted to this hospital for treatment are: The Boston Navy-Yard, including the marine barracks and naval prison; the U. S. S. *Wabash*, and the yard craft. The size of the station and the frequency with which the larger ships are sent to the yard for repairs, and, moreover, the nearness of the Cape Cod Bay drill ground, all represent conditions of possible tax upon the hospital facilities and at all times insure a considerable number of patients for the hospital. In July, 43 cases of malarial fever and some 20 others, sick with various diseases, were taken to Boston from Panama by the U. S. S. *Columbia*, and these, in addition to the number already in the hospital, filled all the wards and six large tents. The sanitary condition of the buildings and grounds has been excellent. The total number of cases treated during the year was 813, and of this number 103 were surgical cases. Thirty-two were of major character and 71 of minor character, although the latter were of varying gravity and several approached the importance of major cases. All were operated on with satisfactory results, except 5 that died and 17 others that are still convalescent and in which the final result is not determined. Six deaths occurred during the year.

The current expenses for authorized repairs and improvements during the fiscal year 1907 were considerable, owing to its age.

Newport, R. I.—The usual sources of patients admitted to this hospital for treatment are: The Training Station, with its large personnel; the Torpedo Station, and the station ship, U. S. S. *Constellation*. In the summer many ships visit Newport. There were 1,101 cases under treatment during the year, including a great variety of affections, those classed under general infectious diseases being the most prominent. Mumps, measles, pneumonia, rheumatism, and typhoid in the order named lead the list. Next in importance as a noteworthy cause of disability are diseases of the digestive apparatus, and after this class comes diseases of the genito-urinary apparatus and venereal diseases.

There were 168 operations performed during the year, 50 of which were of major character. The others were of varying gravity, although in but few instances trivial. All were successful except one. One hundred and eight of the total surgical cases were operated upon during the last six months of the year, which shows that operating work is rapidly increasing and lends support to the asserted need of modern improvement at this hospital. The need, also, for proper facilities to handle the several different infectious diseases, nearly always present at the Newport Station, is apparent, and becomes urgent in the winter months, when it is impossible to use tents. There were 19 deaths. The current expenses for authorized repairs and improvements for the fiscal year 1907 were insignificant.

New York, N. Y.—The usual sources of patients admitted to this hospital are: The navy-yard, including the marine barracks; the receiving ship U. S. S. *Hancock*, and Iona Island. In regard to the special source it is to be remarked that not only do more ships repair at this station than at any other, but it is the home port of most ships returning westward from the Orient, and the point of discharge of the majority of patients brought home by this route from the Asiatic Station.

There were 1,197 cases under treatment here during 1906—256 more than in the previous year. The diseases most largely represented among the admissions, in order of numerical importance, were: Venereal diseases, scabies, tonsillitis, malaria, tuberculosis, mumps, pneumonia, typhoid fever, measles, hæmorrhoids, appendicitis, rheumatism, influenza, middle ear disease, and bronchitis. Many other diseases were represented by a varying but smaller number of cases. Twenty-one fatalities occurred during the year. Among those admitted during the year were 248 surgical cases. Of these 76 were of undoubted major character, while the remainder, including 20 of hæmerrhoids and 20 of varicocele, were minor in character only by comparison. Few were really trivial. All were operated upon with success except three failures to get desired results and four deaths.

Philadelphia, Pa.—The usual sources of patients admitted to this hospital are: The League Island yard, including the marine barracks; the receiving ship U. S. S. *Lancaster* and ships in reserve, the yard craft, and the Naval Home. The growing importance of the navy-yard and the consequent increased number of ships repaired there each year is creating additional demands upon the capacity of this hospital from that special source represented by cruising ships.

During 1906 there were 111 admissions, giving a total of 17,135 sick days, 2,411 of which are credited to the aged beneficiaries. The diseases treated have not varied from those common to other service hospitals, typhoid fever, 31 cases; measles, 20 cases; mumps, 19 cases; and diphtheria, 1 case, being alone worthy of note. Among the admissions were 105 surgical cases, 15 of major and the others of minor importance. All were operated upon with success except 3, who were invalided from the service. None of these cases were fatal, but 20 deaths are reported among the aged beneficiaries, and 1 of the 31 cases of typhoid also died. The current expenses for authorized repairs and improvements during the fiscal year 1907 were insignificant.

Annapolis, Md.—This hospital, while uncompleted at the close of 1906, is at the time of writing in operation and has filled every expectation during its short life. In so far as the existing structure is concerned there is nothing to desire, but when extended according to the original plans it will be an ideal institution of its kind. It will receive the sick among the large officer, midshipmen, and enlisted personnel of the Naval Academy, including the marine barracks and station ships and those from visiting ships as occasion may require.

Washington, D. C.—The old hospital received the sick from the navy-yard, including the marine barrack; marine barracks, United States marine headquarters; Indian Head, and the yard craft. There were under treatment at this hospital during the year 380 patients, 20 of which were sick with epidemic diseases, as follows: Influenza, 3; measles, 4; mumps, 2; chicken pox, 3; diphtheria, 1; and scabies, 7. Thirty-two surgical conditions, 7 major and 25 minor, were operated upon with good results, except 1 case of cancer of the stomach, which died. Including this, 5 deaths were recorded, 2 of which were aged beneficiaries and 1 a suicide.

The current expenses for authorized repairs and improvements during the fiscal year 1907 were insignificant.

The new or medical school hospital was not commissioned in time to have a record for this report, but as pointed out in another section of this report it promises to be a most valuable acquisition to the facilities for the care of the Navy's sick, who are in need of hospital treatment. Indeed, it fills a long-felt want, and the services it has given in its short life more than justify its establishment. It is sufficient to say in regard to its structure and character that when completed it will be an ideal institution of its kind. Its principal function will be to receive and the care for the sick among those of the Navy stationed in and about Washington, both officers and enlisted personnel, but interesting and instructive cases will be transferred to it from elsewhere for the purposes of the Naval Medical School course of instruction. Twenty-seven cases have been under treatment.

Norfolk, Va.—The usual sources of patients admitted to this hospital are: The navy-yard, including the marine barracks; the training station, including the receiving ships U. S. S. *Franklin* and U. S. S. *Richmond;* and the yard craft. The special source represented by cruising ships is a prolific one, as the sick are transferred to it, not only from the many ships coming to the yard for repairs, but from those visiting Hampton Roads and Newport News.

There were 1,396 under treatment during the year, giving 57,042 sick days. General infectious diseases account for 434 cases, which is a numerical preponderance over every other disease class. Second in number of patients treated, though first in number of sick days, are venereal diseases, which give 308 patients and 16,088 sick days. Injuries and surgical conditions are the next most important class, there being 158 admissions to its credit. Hernia with 46 cases, fractures with 29, and wounds of various sorts with 16 lead the list. Three hundred and nine surgical operations were performed. Fifty-one of these were of major character. The others, including 25 for hemorrhoids, and 26 for varicocele, were of a minor nature. The results were satisfactory in nearly all, and there were no deaths.

In view of the early commencement of extensive additions and thorough renovation, the current expenses for repairs were insignificant.

Pensacola, Fla.—The usual source of the sick at this hospital is the navy-yard, but a large proportion of the cases of tuberculosis of the Navy have been sent here in the past, and the ships of the Atlantic Fleet visiting the station and neigboring waters, at times during the winter, made large demands upon the hospital accommodations.

Besides 68 cases of tuberculosis there were 52 cases treated for various other diseases, including 10 infectious diseases. There were 10 deaths, 9 from tuberculosis and 1 from typhoid fever. Fourteen operations were performed, of which 8 were major in character.

Mention has been made elsewhere of the damage which this hospital sustained in the hurricane of September 27, 1906. The repairs consequent upon this disaster added much to the expense of maintenance.

San Juan, P. R.—The source of patients admitted to this hospital is the entire Caribbean station, including the various station ships and those cruising in the vicinity throughout the year. The demand upon hospital capacity is, of course, greatly augmented during the period of winter maneuvers, when the ships of the Atlantic Fleet are assembled in Caribbean waters. During the year there were 353 patients under treatment, of which number 83 were surgical cases, 22 being of major character. All were operated upon with uniform success.

None of the medical cases is deserving of special comment. They consisted largely of those common to tropical latitudes. It is alone worthy of remark that admissions for venereal diseases from among the personnel of the San Juan station were very few.

Current expenses for repairs and improvements were insignificant, although the peculiar climatic conditions existing at this station make it necessary to exercise constant vigilance to keep the hospital buildings presentable in appearance and in repair.

Sitka, Alaska.—This hospital receives the sick from the force serving in Alaska and the occasional visiting ships, yet, small as the station is, the hospital capacity was inadequate. When the residence of the governor of Alaska became vacant last summer by reason of the removal of the capital to Juneau, it was requested that this building be transferred to the Navy for hospital purposes, and by its acquisition provisions for the sick have become very much more satisfactory. While awaiting the result of negotiations to this end the building was occupied for hospital purposes under lease, and, although many repairs and changes and improvements were needed for its complete adaptation to the new use, nothing more than absolutely necessary repairs were undertaken and little money was expended.

The hospital is so closely identified with the marine command that the question of disease and sickness has been sufficiently brought out under the section of this report on "Marine detachments." It may be added that, besides the 32 admissions from the Navy, 25 patients from other sources were under treatment, of whom 2 died with apoplexy. During the year 16 operations, all of minor character, were performed.

Puget Sound, Wash.—The usual sources of the sick admitted to this hospital are: The navy-yard, the receiving ship U. S S. *Philadelphia*, and the marine barracks. This hospital is, also, so closely identified with the station, as sick quarters, that the questions of disease and extent of sickness are sufficiently brought out in the section of this report on "Naval stations within * * * the United States." Among the 255 patients treated there were 26 surgical cases, 3 of which were major in character. All were operated upon with satisfactory results.

As regards repairs and improvements none worthy of note was made, the controlling idea, in anticipation of the new establishment, being merely to keep the present hospital in such working condition as would tide over the period necessary to the completion of the projected construction.

Mare Island, Cal.—The usual sources of sick admitted to this hospital are: The navy-yard, including the marine barracks; the receiving ship, U. S. S. *Independence*, and prison ship, U. S. S. *Manila;* the training station, and the yard craft. In addition, tubercular sick have been sent to it from various places, and, as San Francisco is, in the majority of instances, the port of arrival of ships returning east from the Orient, the sick sent home from Hawaii, Samoa, and the Philippines, etc., are received also.

Eight hundred and twenty-two cases of the regular naval sick and 78 supernumeraries, 900 in all, were treated during the year. The latter class of cases were composed of 37 old service men and 41 civilians, citizens of San Francisco who were admitted and cared for after the earthquake and fire of April 18, 1903. Among the latter were both medical and surgical cases, the former removed from civil hospitals. The sick days numbered 1,638, which, with the regular sick days and those contributed by the usual supernumeraries, made a total of 35,398 for the 900 patients treated. The medical cases do not require special comment. The surgical cases were varied and the operations, 21 of major and 72 of minor character, were successful.

It is desired to call attention to the large number of sick days due to venereal diseases of all forms, 6,547, or a little more than 20 per cent of the entire number, being credited to this class.

The sanitary condition of the various buildings and the grounds has been good. Aside from the repair of damages sustained during the earthquake, which was defrayed by special appropriation for the purpose, only minor repairs and improvements have been made, and the current expenses have been comparatively small.

Canacao, P. I.—The usual sources of the sick admitted to this hospital are: The navy-yard, including the marine barracks; the various posts throughout the Philippines, and the station vessels. On this station the cruising ships may be considered a regular source of patients for hospital treatment, and the demand for accommodations upon the Canacao hospital is often far in excess of its capacity, viz, 80 beds. It has been necessary to make place for 157 patients at one time, and it becomes constantly necessary to utilize tents. There were 516 cases under treatment during the year, exclusive of 30 supernumeraries, and the daily average of patients has been between 105 and 106. Six deaths are recorded, 2 among the naval patients and 4 among the supernumeraries. One case of smallpox and 2 of cerebro-spinal meningitis constitute the special medical cases, although there were many other grave ones. Two hundred and twenty-two operations, 63 of major and 159 of minor character, were performed. All were successful.

In view of the fact that this hospital has been established such a short time many things are required for its completion, and improvements are continually being made in addition to necessary repairs.

The current expenses, however, were comparatively small, except that incurred by the sinking of an artesian well, which was defrayed out of the appropriation for that purpose.

Yokohama, Japan.—The patients admitted to this hospital are received from the whole Asiatic Station, such sick being sent here whose particular illness or whose general condition, aside from it, requires a change of climate. While other important work is done here in treating patients from cruising ships in adjacent waters, the hospital represents, above all, a provision for the recuperation from tropical disorders and the treatment of disabilities which do poorly in Guam and the Philippines.

The increased activity of this hospital following the cessation of the Russo-Japanese war was continued during 1906. Two hundred and fourteen cases were treated, the percentage of officer patients being a little over 11. The medical cases do not require special comment. Thirty surgical operations were performed, of which 15 were major in character. No deaths are recorded.

The current expenses for authorized repairs and improvements during the fiscal year have been inconsiderable, except for the erection of a two-storied building at a cost of $2,801.25 and the purchase under 999-year lease of a small lot adjacent to the hospital grounds at a cost of $4,980.

WORK OF NAVAL DISPENSARY, WASHINGTON, D. C.

The year's record of professional services rendered the naval officers on duty in Washington and their families by this long-established branch of the United States Naval Medical Department gives abundant reason not only for its continuance but for the enlargement and improvement of its provisions. The medical officer detailed for this duty reports 3,692 visits, 3,991 office consultations, and 15,034 prescriptions filled during 1906.

NAVAL MEDICAL SUPPLY DEPOTS.

Mare Island, Cal.—During the year 86 requisitions were filled at this depot, amounting in value to $17,553.54.

At the time of the earthquake and fire at San Francisco in April, surgical dressings and medical stores were promptly issued, when required, upon authority of the commandant, and much assistance was thus rendered to the sufferers. These issues were dispensed largely by the junior medical officers of the station, who went to San Francisco with relief parties to search for and give relief to the injured, and accompanied such cases as were brought to Mare Island or its vicinity for further treatment.

In connection with the Red Cross Society of Vallejo, the medical officers and members of the Hospital Corps also established a temporary hospital in the building of the Young Men's Christian Association and medical and surgical supplies for carrying on this humanitarian work were also furnished from this depot. By this means about 200 sick and injured men, women, and children were given required attention.

Brooklyn, N. Y.—During the fiscal year 1907 about 600 requisitions from vessels and stations were filled and shipped from this depot, and the stores so handled and distributed amounted in value to more than $200,000. At this depot all medical supplies for the Medical Department of the Navy, including hospitals, navy-yards, shore stations, and other medical supply depots and vessels, are assembled and distributed, and many items, such as transportation boards, boat boxes, medicine chests, etc., manufactured. Throughout the fiscal year the business of this institution has been expeditiously and economically transacted, and the records and accounts accurately maintained.

RECEIVING AND PRISON SHIPS.

U. S. S. Southery.—The sanitary condition of the ship has been good and the general health of the men excellent, due to salubrity of climate and the outdoor life and exercise incumbent on all prisoners. With an average complement of 475 men there have been 623 sick days, a daily average of 1.7, with percentage of sick 0.35. No deaths occurred during the year. A slight epidemic of mumps occurred during the month of April and tonsillitis in some form prevails at all times. Thirty-nine patients were transferred to hospital during the year, 38 to the United States naval hospital at the navy-yard, Portsmouth, N. H., and 1 to the United States Government Hospital for the Insane, at Washington, D. C.

There is no artificial system of ventilation on board the ship and one is badly needed, as the air, particularly in the prisoners' compartments, becomes excessively foul during the night and early morning hours. A sample of air collected at 5 a. m. from the compartment which was occupied by 247 prisoners contained 20 parts per 10,000 of CO_2.

The quarters of the ship's crew and marines are cramped and uncomfortable, and, as the character of the duty they are obliged to perform is not only disagreeable but depressing, their quarters should at least be comfortably habitable and the men accorded special privileges and extra compensation.

U. S. S. Wabash.—The health of the ship for the past year has been very good considering the age and condition of this vessel and the number of men that have been housed aboard. The ship has been kept scrupulously clean, decks schellacked and dry, and there are excellent facilities for bathing.

A few changes have been made, the most important from a sanitary point of view being the removal of nine old cells from the berth deck, thus providing more space and better air for the prisoners who are confined there awaiting action.

U. S. S. Hancock.—The sanitary condition and health of this ship has been excellent, but its position directly in front of the discharge of the cob-dock sewer, while not necessarily a menace to health, though capable of being so, was a constant source of great offense to the nose as well as the eyes of everybody on board. It would seem that something might be done to give relief from this nuisance and make the life on board more agreeable and comfortable. To this extent also, conditions favoring health would be improved. The sick record shows that 516 were admitted to the sick list out of a complement averaging 1,086. There were three fatalities.

The number of physical examinations for enlistment on this ship total 1,216. Of these, 647 were accepted, 37 were rejected for color-blindness, and 532 were rejected for all other causes.

U. S. S. Lancaster.—The officers and enlisted force, averaging 526, coming under the care of the medical officers of the U. S. S. *Lancaster* during the year were distributed among that ship, the U. S. S. *Panther*. the U. S. S. *Brooklyn*, the U. S. S. *St. Louis*, and various torpedo boats, tugs, and the camp, and the records of sick from these various ships, etc., are combined in one report.

The sanitary condition and health of these several units in the command was good. The total number of cases admitted to the sick list during the year was 346. In view of the very warm and humid summer, the fact that many of the men were recruits, living under new conditions with new environments, that some men had been transferred from points where contagious diseases existed, and that general infectious diseases were prevalent in the city of Philadelphia, this number is very small.

There were 11 cases of measles, the first case appearing fourteen days after leaving Norfolk, where the disease was present—12 of mumps, 2 of chickenpox, and 1 of typhoid. From the time the first case appeared the crew were inspected daily, suspected cases isolated and upon the verification of contagious disease promptly transferred to hospital.

The "Camp," although not suitable for permanent occupancy, served a useful purpose during the early summer by receiving the overflow from the *Lancaster*. Profiting by previous experience and bearing in mind the danger of overcrowding, only a limited number were sent there, from 250 to 350, the upper stories of the dormitories alone being used for berthing, and the men kept in the open air as much as possible. By the transfer of these men to the "Camp," the use of the berth deck in the *Lancaster* for berthing was obviated, the spar and gun decks alone being used. The dispensary and recruiting office were enlarged to provide for the proper examination of recruits, but no structural changes of sanitary import have been made. The ventilation, however, as pointed out by the medical officer, is in urgent need of improvement.

Franklin and Richmond.—The year's record of these ships is embraced in the sanitary and health report of the Norfolk training station. No special comment upon either one of them is required.

U. S. S. Philadelphia.—During the past year this ship has been in excellent sanitary condition, and, as a result, the per cent of sick has been gratifyingly small. The only menace to health was the water supply, which is derived from springs in the Puget Sound Navy-Yard, and which is given due consideration under that heading.

Venereal diseases were practically absent until the men from the U. S. S. *Wisconsin*, with their infections acquired in the Orient, were transferred to this ship.

U. S. S. Independence.—In addition to the professional work required by this vessel, that necessitated by the reserve torpedo flotilla, the submarine vessels and tender, the yard craft, and smaller vessels, and the prison ship—all at this station, is attended to by the medical department of the *Independence*. The combined total daily average complement for the past year has been 767 officers, men, and marines.

The health of the command was excellent, no epidemic having occurred, and a minimum of serious cases being recorded. The prevailing causes of disability in order of numerical importance were: Diseases of the nutritive apparatus; venereal and genito-urinary diseases; injuries; infectious diseases; diseases of the nervous system; cutaneous diseases; and poisons.

No structural changes of sanitary import have been made in this vessel, and while possessing the long appreciated faults of her class, she is still in excellent condition and forms a satisfactory habitation for her personnel, due to the absence of extremes of climatic heat and cold. the care exercised in cleanliness of holds and storerooms, and the free and regulated ventilation, the large ports cut in the ship's sides, skylights, air trunks, and electric fans insuring a constant circulation of air and preventing stagnation.

The excellent athletic and recreation field, the drill hall, and library, wash houses, shops, and prison ship (U. S. S. *Manila*) are sanitarily satisfactory and admirably adapted to fulfill the objects for which they are intended.

CRUISING SHIPS.

The health record of the force afloat has, on the whole, been gratifyingly good during the year covered by this report, and it may be accounted particularly satisfactory in view of the large number of raw recruits, who, by virtue of their inexperience in the care of themselves in the new conditions of life, the unaccustomed surroundings in which they find themselves placed, and the peculiar exposure represented by naval service, always contribute largely to the sick lists. The per cent of sick compiled from statistical reports from all sources is 66.11.

Infectious and contagious diseases have occurred on some of the ships, but their occurrence, perhaps, may be regarded not altogether unnatural when it is considered that each ship comprises a community of individuals with widely differing degrees of susceptibility and physical resistance; that men can not be kept indefinitely on board ship without physical deterioration; and that, in spite of the wisest and most careful surveillance, entire avoidance of exposure is impossible and not to be expected. The ship, per se, is not necessarily implicated in the origin of the infection and only becomes a party to the epidemic, which has sometimes followed, because of the intimate existence which obtains between all living on board during the period of incubation of the disease brought from shore. It was for the purpose of the early and timely discovery of such diseases, unintentionally concealed, that the weekly inspection of the crew while at general muster by the surgeon was instituted; and while this custom, necessarily superficial, has been fruitful of good results and its continuance is warranted by experience, a less perfunctory and more thorough examination would seem to be advisable at greater intervals. This was done by Surg. O. D. Norton on the *Missouri* and, he reports, with very satisfactory results in bringing to light skin and other diseases with external manifestations afflicting men who were either treating themselves or ignorant of their condition. He recommends, as a sanitary measure, that once a quarter every enlisted man on board ship be stripped and carefully examined by a medical officer, following a routine, to the end that no condition endangering the health of the ship's company or interfering with the physical efficiency of the individual shall be overlooked.

During the year isolated cases or mild epidemics of various contagious or infectious diseases have occurred on a few ships. The *Boston* reported smallpox 1 and measles 4; the *Charleston*, measles 11, scarlatina 2, and pneumonia 4; the *Columbia*, measles 4 and mumps 2; the *Colorado*, mumps 9; the *Des Moines*, chicken pox 1; the *Maine*, scarlatina 1; the *Minneapolis*, measles 6; the *Missouri*, mumps 5, rubella 1, and chicken pox 1; the *Raleigh*, smallpox 1, dengue 1; the *Scorpion*, influenza 19; the *Baltimore*, influenza 75 and rubella 1; the *Wolverine*, diphtheria 6; the *Cincinnati*, mumps 22; the *Severn*, typhoid 5; the *Pennsylvania*, typhoid 44; and the *Connecticut*, typhoid 47. The epidemics on the last three ships and on the *Wolverine* alone merit special comment.

That occurring on the *Severn* during the summer cruise would seem to have had its origin in Annapolis, although the report of the senior medical officer of the academy shows conclusively that infection occurred elsewhere. Four cases developed among the midshipmen and 1 case in a member of the enlisted force. On August 1 the ship was thoroughly disinfected with sulphur and formalin. The surgeon of the ship believes that the myriads of flies with which the ship was infested from the beginning to the end of the cruise were responsible for the spread of the disease in at least two cases; and although every effort was made to exterminate them, nothing was of avail.

The epidemic of typhoid on the *Pennsylvania* began on February 14 by the appearance of one case after this ship had left St. Vincent, and was probably contracted at that place. As to how the disease spread aboard ship no definite conclusion was reached. With reference to this epidemic, however, Fleet Surg. H. E. Ames writes as follows:

> In my inspection of the *Pennsylvania* I found that they were in the habit of keeping the fresh water supplied the gun divisions for cleaning the guns in half barrels; after soiling the water in washing the station it was returned to the barrels and used by the crew to wash their dirty clothes or hands indiscriminately, thus rendering these receptacles typical nests for the spreading of any contagious disease. I believe that this outbreak could have been spread through this source, it being so common for men, in washing their clothes, to put their hands in their mouths, handle their plug of tobacco or pipe, or even eat fruit while their hands are still wet.
>
> The other source, I believe, was from swimming. The fecal matter is all water borne from the head and empties directly into the bay. We know that the bacillus of typhoid is present in the intestines before the patient seeks medical advice, and a diarrhea may exist for some time before he is placed under medical care. The intestinal matter will float on the surface for some time and retain its infecting power, and the men in swimming take water into their mouths and nose, and infectious material is thus easily spread. This would account for the number of cases. The fact that one case appeared on the *Alabama* could be easily accounted for in that way. Flies may have spread it, but in this instance it is not probable.
>
> The infection of the water in the tanks is not reasonable. The same applies to the food, as the cases were too few and were not confined to any one mess. No cases existed at Guantanamo on shore. It had its origin in Kingston.
>
> All known devices to limit the spread of the disease were used.

That occurring on the *Connecticut* from February 5 to April 30, 1907, while the ship was in southern waters, was attributed by the medical board, organized by the commander in chief United States Atlantic Fleet, to contamination of the water supply by Wallabout sewage at the Brooklyn Navy-Yard, made possible by virtue of defects in the ship's pipe cross connection between the fresh and salt water systems. This is also the explanation entertained by the senior surgeon of the ship, but who, in the special communication transmitting his statement regarding the typhoid epidemic and reviewing its history, presents other theories as to its possible origin. In this connection he gives weight to the general insanitary conditions which prevailed from November 6, when the complement was increased to 807 by the receipt of 400 ordinary seamen from the training station, Newport. These conditions, which are described under the head of "Barracks, etc.," were unavoidable, but none the less deplorable as defeating all efforts to maintain any approach to the normal in cleanliness of ship and crew. When it is considered, as stated, that the Wallabout water was used in flushing the upper decks, in scrubbing canvas, and was the only supply to the crew's showers, it is at least possible that typhoid germs may have been conveved through some other medium than the drinking water, and under the favorable conditions of the Tropics the epidemic was developed. Another possible source of the invading infection, it is stated, is to be found in food supplies obtained at Hampton Roads, which included milk and raw oysters.

Two distinct outbreaks are recorded, with an intervening period of twenty-three days' exemption from new cases.

The source of infection of the first outbreak has never been positively determined, nor is there sufficient evidence to warrant the assumption of a definite theory. The reports from all sources cover the ground most thoroughly. The cases were regarded with suspicion long before an absolute diagnosis was made, and, it would seem, from the very earliest stages the general treatment of those sick and the handling of the fomites, etc., were carried out with that suspicion in mind.

In consequence of the second outbreak on April 11, after the ship had come north and when lying in Hampton Roads, Surg. J. F. Urie, U. S. Navy, as a special representative of the Bureau, was sent to investigate and report upon the health conditions of that ship.

The report submitted reviews the history of both outbreaks and comments upon the theories propounded to account for the first epidemic.

In attempting to determine the possible sources of the second outbreak, which was the main object of the investigation, Surgeon Urie had the following to say:

> Attention was first given to evidence leading up to the determination of any possible connection between the two groups of cases. The seven convalescents returned to duty from the sick list of the ship and three from hospital were the first upon whom suspicion fell. Considering, however, that the crew has not been recontaminated, and that these people had little or no contact with the victims of the second outbreak, they can not logically be considered as the source from which the second infection took its origin. These individuals were examined, however, and gave no evidence of being other than in a normal condition. A bacteriological examination of the excreta of these men, conducted under laboratory conditions, would alone determine whether or not they are a menace to their shipmates. In view of the fact, however, that they have not infected the men of the ship with whom they have been brought in contact for over a month, and were not in contact with those who have been infected in the second outbreak, the probability that they are a source of infection is not entertained.
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> All the mess attendants of the different officers' messes were examined with the intention of determining whether or not any had been slightly ill during the first outbreak and left in condition to do damage to others. Nothing was discovered by this examination. No evidence of personal contact as a connecting link between the two infections could be discovered, nor could any contamination of food or water supply be traced which might have held over from one outbreak to the other.
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> Considering the interval between the two outbreaks (23 days), the fact that the location of the infection in the two groups were in distinctly separate divisions of the ship's complement, and that infection from personal contact can not be demonstrated, it is practically impossible to connect the two outbreaks. The medical officers of the ship are inclined to the belief that the late invasion is a new infection from sources external to the ship, and the weight of evidence, as stated above, would seem to be in favor of this contention. On the other hand, there is no positive evidence in support of it, and against it is the report of no typhoidal disease at Fortress Monroe and vicinity. Oysters have been considered as a more than probable carrier of the infective agent of this outbreak by the medical officers.
>
> No adverse criticism can be made of the condition of the ship as she is to-day in regard to all that makes for good sanitation, as far as can be determined by inspection. Cleanliness in every particular is strikingly evident, ventilation is of the best, the flushing of the drainage system more than usually powerful, and the water supply and storage under careful surveillance. Thorough sanitary inspections are made daily and the situation is well understood and guarded by both administrative and sanitary officers, and every effort is being made to prevent further continuance of the infection.
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> As conditions stand at this date there would seem to be no demand for more drastic measures to insure immunity from further infection than those in operation. In this second invasion of the disease there seems to be no evidence that would lead to a suspicion of personal contact as the means by which the infection is continued in the ship. It has been advised that this method of extension be most carefully guarded against and watched for, and should suspicion, no matter how slight, fall upon any member of the ship's personnel, that person

should be isolated and specimens of his excreta sent to laboratory, properly safeguarded against decomposition, for bacteriological examination. Should more cases develop with such intervals of time between infections as to suggest that the ship's personnel was continuously exposed to the infective agent, the question of separating the crew from the environment of the infection within the ship and from each other must be entertained.

Surgeon Urie has struck that keynote of comparatively new importance in the remarks embodied in the last quoted paragraph of his report. Contact infection deserves careful consideration as a means of spreading this dread disease, particularly in such closely packed communities as represented by a ship's company, and the term is applicable not only to personal infection of articles of food and drink, but to direct man to man infection. In accounting for the presence of typhoid and in the formulation of prophylactic measures and in the general management of the disease, it must not be forgotten that the bacillus of typhoid persists in the excreta for a long time, and special vigilance is to be exercised during the activity of a case and during the more or less prolonged period of convalescence from typhoid, against the exposure of others to the possibility of infection by transmission from these sources of contamination. Impelled by the experience of the U. S. S. *Connecticut* the Bureau has directed (July 13, 1907) that as far as possible, by examination of the urine and fæces, it shall be determined that convalescent typhoid patients are free from typhoid bacilli before being returned to their ships.

The occurrence of six cases of diphtheria on the *Wolverine* in October of 1906 was naturally a matter of concern, but the outbreak was controlled by prompt, vigorous, and thorough action, and the satisfactory termination is attributed by the surgeon of the ship to the following measures:

First, the continuous sterilization of the crew's drinking cups; second, the sterilization, by boiling, of all the mess gear after each meal; third, the daily examination of the throats of the crew; fourth, the information given the men of the crew concerning the disease and their cheerful and intelligent compliance with instructions; fifth, the efficient cooperation of the men of the hospital corps and the chief petty officers; and sixth, the immediate isolation of those having the disease.

The provisions for the care of the sick and injured on the ships of the Navy, though intended only for emergency purposes, are generous in point of space, and the equipment of these sick quarters is all that the most fastidious modern standard requires. In further reference to allowed space, however, it must be said that while it has been characterized as "generous," the Bureau is desirous of being understood to use the term only in recognition of the real end for which ships of war are built and of the innumerable other legitimate claims upon space. It was the pressure of these claims at a time of minimum illness which led the Bureau to consider whether the needs of the sick and injured could not be met by a smaller allotment of bunks, and although the possibility of this was conceded and several ships already built, and plans for future construction were altered accordingly, and although the Bureau does not desire more than its proper allowance of space as estimated upon the determined probable per cent of disabled in ordinary times, caution is to be observed that the accommodations for the most promising work of the Medical Department are not too scanty.

The matter of providing adequate space for the work of the Medical Department has become a question of what is the least that will secure efficient performance of its functions, and it is far better, with due regard to our obligations, to err on the side of safety. Beyond the temporary care of emergency cases, ships of war are not the place for the seriously sick and injured requiring prolonged treatment. Yet patients have often to be retained on board subject to all the disturbing and often distinctly injurious and inalienable conditions of ships, exemplified by noises, etc., in order to preserve the membership of the crew intact. This is a laudable aim only where it is honestly felt that the best interests of the patient can be served, but a solution of the problem to the interest of everybody concerned is presented under the head of "Hospital ships." When hospital ships are provided, and not until then, should we think of materially reducing the size of sick quarters.

The year has afforded most gratifying proof of the benefits of the sick quarters now provided which, in view of the long-existing excellent character of equipment, is entirely due to the greater space allowed. The operating rooms have been a marked success; the isolation wards have again and again been of the utmost value, and the large, well-ventilated, well-lighted sick bays have shown what can be done in caring for the sick on board ship.

The unfortunate collision between the U. S. S. *Illinois* and the U. S. S. *Alabama* that occurred just outside Newport Harbor last July, resulting in two members of the crew receiving serious injurious that required immediate surgical operations for their relief, clearly demonstrated the absolute necessity for an operating room in every first-class man-of-war. Without one, the surgeons are greatly handicapped in their efforts to do aseptic surgery by having to operate in the cramped space available in the sick bay. Under these circumstances the patient has to be anæsthetized and the operation conducted in plain view of the other patients who may be confined to their cots.

The general sanitary features of ships, particularly of the newer types, as represented by those commissioned during 1906, the *Virginia*, *Georgia*, *Rhode Island*, *New Jersey*, *Louisiana*, *Connecticut*, *Tennessee*, *St. Louis*, *Charleston*, *Washington*, and *Milwaukee*, mark a great advance over the older ships of similar class and, on the whole, may be said to be satisfactory. There is room for improvement, however, in the direction of ventilation and lavatory accommodations, and it is hoped that future plans will correct existing defects and provide the needed sanitary requirements as far as may be consistent with modern ship construction.

As regards *ventilation*, it is believed that too much strees has been laid upon the exhaust system, not, however, as concerns its importance per se, but in so far as its installation seems in many cases to have been at the expense of the equally valuable though older system of supply. The parts of the ship which have suffered particularly by virtue of the preponderance of importance lately given the exhaust system are the isolation ward, the toilet closets, and wash rooms, and, broadly speaking, those divisions of the ship so situated as to be deprived of any natural supply, especially the citadel. These various compartments should be furnished with both supply and exhaust systems and, although it is recognized that in many pressing instances this has been done, the Bureau advises a more complete attention to the need.

As regards *lavatory accommodations*, improvement is urgently required. The question of ventilation has been considered. The closet seats should be made on a more sanitary plan. Suggestions have been received from various sources and these have been placed in the hands of the Bureau of Construction and Repair for such use as it may be able to make of them. The guiding idea in any design should be to prevent befouling and the spread of infection.

Some hygienic features of ship life.—There are several matters meriting discussion under this head which affect the health, expansion, and efficiency of the Navy.

The better understanding which exists between the officers and crew and the intelligent singleness of purpose on the part of both, that the Navy shall increase in efficiency in all branches of its organization; the growing realization of the necessity for constant application, and, at times exceedingly distasteful labor, with a due appreciation of the value of well-earned leisure, and the quickening and sustained interest of the men in all that pertains to their life on board, tend more and more to make ship life comfortable and healthful.

There are, however, broad hygienic dictates, such as are touched upon in the discussion of tuberculosis, which we will do well to recognize and heed. In this connection, Surg. I. W. Kite remarks:

> It is apparent that a large proportion of the enlisted men of the service, housed on large ships with numerous decks and compartments, do not get enough exercise or work in the open air and sunshine to keep them in as good physical condition as they should be. This is clearly shown in the large number of sallow and anæmic looking individuals seen at general muster. On our ships with so much covered deck space the men can so readily stow themselves away that there seems to be a disinclination to take advantage of leisure hours in following health-giving pursuits. Quarters, "setting-up drill," routine exercises, and other duties force them out for a time, but after these are over there is again a general stowing away.
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> The games indulged in on shore by the men are not of a character to bring about an improvement of the physical stamina of the crew as a whole. In the first place, only a limited number can engage at one time in such games as football and baseball, and, as far as can be seen, the selection of men to make up the teams is from those who are already of good development, and necessarily they must be so in order to stand the physical exertion required.

One has only to compare a given number of the crew, taken at random, of any one of our large ships with the crew of one of the smaller ships which has been actively engaged in surveying (a service which keeps the men at work in the open air) to realize the full meaning of this usual lack of outdoor exercise.

On this same phase of ship life, Medical Inspector H. G. Beyer writes:

> A constantly increasing preponderance of younger over older men in the naval service must have become strikingly apparent to every officer having watched the growth of the Navy since the late war. This fact, while encouraging to those who have the future of the service at heart, and, while having the advantage of placing into the hands of the young officers in the service better chances for the molding of men for the service at an age when physical as well as mental adjustment are more easily effected than at a later age, it likewise entails upon them greater responsibilities and demands from them greater knowledge as regards the care of such young men. The future will decide whether they have taken advantage of or wasted their opportunities. But now

is the time for the due and proper appreciation of the far-reaching significance of this fact.

While we are using every effort to increase the mechanical efficiency of our vessels of war as fighting machines, very little is being done to create vigorous, well-developed crews to man them.

A slow and deliberate, but intelligent and careful building up of the young men of the country at large and of the service is by no means the least of the fundamental features of the preparations for war in peace times, and, therefore, should be ever kept fresh in the minds of those who have the responsibility of such training upon their shoulders. Nor is it possible to repeat too often the valuable illustrations of the importance of physique that we may derive from recent wars: The Russians entering the Sea of Japan had behind them a fatiguing cruise of at least six months in tropical waters, to which by nature they were not accustomed and from the effects of which the Japanese, very wisely, did not give them time to recover. The Japanese, on the other hand, had lived in an ideal climate for four months without steaming, and just sufficient drills to keep their men physically fit, and on a diet perfectly fresh and wholesome. They were not at all anxious to meet the Russians off the coast of Madagascar, but quietly permitted them to fatigue and exhaust themselves on the trip.

In the matter of poor physique the questions that arise in one's mind in carefully scrutinizing the number of such men are: Do these men get enough sleep and is this sleep made as continuous and undisturbed as conditions permit so as to prove restorative; are they put through their gymnastic exercises at the proper time and with the regularity, care, and deliberation which are needed to make them a success; are the climatic conditions under which they live and that are known to influence especially the younger men unfavorably taken into consideration sufficiently, so as not to allow them to retard their growth and physical development?

As to the latter point of hygienic consideration, I would respectfully invite the Department's attention to the probable effect upon the personnel of the apparently growing custom of keeping our ships more and more continuously in hot climates.

Surg. E. S. Bogert, U. S. Navy, commenting upon this feature of our service says:

> While it is perfectly true that drills may be more continuously and better carried out in the latitudes in which the fleets now cruise than if more varied climates were encountered, and with a due appreciation of the value of the climatic conditions thus encountered for the maintenance of cleanliness of both ships and men, it can not be denied that the physical effect upon the personnel of this almost continuous residence in hot climates on board ship tends to a lessening of physical energy and endurance. The personnel of our Navy is largely composed of men of the Anglo-Saxon and Celtic races, who are hygienically known to thrive best in moderately cold climates. It is not now unusual to meet officers and men of the Navy who have not experienced cold weather for five, six, and in some few cases, even seven years. It would thus seem that we are attempting to force the personnel to acclimatization to tropical conditions instead of the hygienically more desirable attempt to accustom the men to service conditions in temperate climates. Is the latter not also more desirable from a purely military standpoint? As our country is located in the temperate zone, it is quite within the bounds of probability that in the event of war our ships would have to be handled and fought in cold weather. What results could be expected under these conditions with a personnel which had received all its training and experience in hot weather? Could the personnel of our Navy physically withstand the rigors of a winter campaign at sea, such as the Japanese Navy experienced in the recent war with Russia?

Aside from the inevitable impairment of physical tone consequent upon too prolonged service in the Tropics, there develops a very serious discontent and apathy which is deserving of careful consideration. This condition is not due to physical illness of the men or sanitary defects of the ships, but is purely a nervous state caused by long sojourn in dull ports and monotonous surroundings. If it were possible to remove this depressing influence by more frequent changes of station and by giving them changes of scene and amusement by visits to our northern home ports, it would be a judicious and salutary measure.

With general reference to sickness afloat, the Bureau wishes to invite attention to the engineer's force as presenting a sanitary problem difficult of solution. It is often short-handed and even if not and the individual members are all physically qualified for such duty, which is not always the case, the demands of the Department in and out of port keep the men too long employed below decks and away from the sun and fresh air which they need so badly as an aid in recuperating from their arduous duties. In this connection the Bureau further invites the Department's attention to the present uniform regulations as imposing unnecessary hardship. According to the Uniform Regulations, Navy of the United States, 1905, part III, section 4, paragraph 6, page 35. "dungarees may be worn by the engineer's force while on duty in the engine and fire rooms." As these men must shift into the uniform of the day for meals, quarters, and before going on deck they must shift clothes at least five times between "all hands" and evening quarters under the port routine, and, under the sea routine, must also make frequent changes of clothes, the number of shifts depending on the watches which they may be standing on any day. The result is that many of these men remain below rather than make the added exertion to shift, when they should be up on deck in the sun and fresh air. The Bureau is sensible of the need for the uniform appearance of a ship's crew, but it would seem that some expedient should be adopted to relieve these hard-worked men of the tedium of frequently changing their clothes. It all taxes that physical energy which should be husbanded.

Heat exhaustion among members of this force is becoming of too frequent occurrence and the cause is properly assigned to a combination of circumstances—inadequate ventilation, overwork, excessive heat, and pressure of forced draft. Aside from the important factor represented by the individual physical condition, weight must be given to tropical service, for it is in these latitudes, particularly during full power trials, that the majority of cases occur. In view of these facts it is respectfully suggested that hereafter such steam trials be ordered only when in a more bracing climate than that of the equatorial region.

Torpedo-boat service.—The special work of the torpedo boats and destroyers calls for a few suggestions based on the experience gathered from the officers commanding these vessels and the observations of medical officers. The small size of the boats, their liveliness at sea, and a knowledge of the great speed they are at times called upon to make, and the special work they are subject to, is sufficient warning that the men serving on them should be well seasoned, and carefully selected. It is a great handicap to these vessels if a few men break down, for it not only reduces the existing small force in point of hands to perform the various specific duties, but throws extra labor on the others, already fully occupied, and weakens their efficiency. It is fully recognized that new men must constantly be trained for this work; still, it is recommended in accordance with advices received from officers who have served upon these boats that the green men be more carefully selected, and that only men of strong constitutions who have become accustomed to sea life and can withstand the severe physical strain be detailed. It is at least believed important that, as a general rule, no raw recruits should be assigned to this service and it is so recommended. Excellent men are often found who from appearance seem well suited, but are soon found to be ill adapted for such duty. When this is established such men should at once be exchanged. Their unfitness is simply the expression of an inherent deficiency in the special requirements and not in any way chargeable to lack of interest or loyalty of the men. Moreover, the period of service on these ships should be limited, as after one year it is reported the men show signs of constitutional weakness and failing health, particularly those who are over forty years of age.

For the same reason the Bureau would respectfully suggest that the medical and moral reports of the men drafted for the torpedo boat destroyers be closely scanned, and only men with good health and conduct records be detailed.

The duties of the medical officer of these boats are arduous owing to his divided presence among the various vessels, which, with the necessarily cramped and inconvenient arrangement of the quarters occupied by the crew, renders it difficult to meet all the requirements of the sick. The muscular and abdominal cramps, which are continually occurring among the men of the fire-room force and the reported numerous injuries, often slight though capable of serious consequences if unattended, emphasize the necessity of accessible medical services and the need of having a trained medical attendant, a hospital apprentice, first class, on each vessel of a flotilla. Under present conditions cases of sickness or injury, no matter how great, must wait until trained medical attention can be brought from another vessel of the flotilla, and such relief is often long delayed or an impossibility in rough weather and at great distances. In exemplification of the consequence of such isolation, an experience of the second torpedo-boat flotilla may be cited. A case of cerebral concussion could not be seen for four hours, and an inguinal hernia, caused by continual vomiting, could not be attended to for forty-eight hours, both because of a very heavy sea running at the time. The necessity of keeping the complement of a destroyer within reasonable bounds is fully realized, but as there is sometimes a wardroom cook, wardroom steward, and mess attendant on each vessel for two or at most three officers, it would seem that the mess attendant might be dispensed with and a hospital apprentice first class, added to the complement of each vessel in substitution. Of course, on account of the shortage of the Hospital Corps such assignments would be impossible at present, but their desirability is here brought to the Department's attention with a view to future action, when the service exigencies will permit. Under the proposed reorganization it will be possible to furnish men especially trained for this work.

The experience of the first torpedo flotilla cruising in the Yangtse River during the warm months also carries a lesson. The health of the flotilla was extremely bad, malaria being especially prevalent, as the exposure to disease influences, consequent upon the rapid current and the lightness of the boats' anchors, necessitating an anchorage close to the shore and at times a mooring, was unavoidable. It would seem unwise, therefore, in the summer season to send this class of vessel to these waters.

The Navy ration.—The quality of the food served the men is excellent. Its variety and preparation are well looked after, and very few complaints are heard from any quarter. The new ration was first served in July last, and since that time there has been, if possible, less complaint than before. One has but to examine the statistical report of any naval vessel to ascertain the extremely small number of digestive disorders with which the crew is afflicted; and the numerous specimens of strong, hearty men, with clear skin and eyes, with a stable or increasing body weight, all give evidence of the most practical kind that the nutritive value of the Navy ration is of the highest order. Much depends upon the commissary steward. His arrangement of the menu for each day, his personal supervision and efforts to have the food served hot and carefully, and his willingness to act upon suggestions as to variety, all tend to cause satisfaction among the crew, and satisfaction with the food is as good as a secondary appetite, increasing the power of digestion.

Clothing.—The outfit of clothing each enlisted man is required to possess is, with one exception, large enough and of a character to meet the demands of the various climates to which he is exposed. It is reported that in hot weather many of the men wear bathing trunks in place of the long knit drawers at present supplied. It is believed that an allowance of short, loose, muslin drawers, to reach not below the knee, would be a most comfortable addition to the outfit in the Tropics.

While the different articles of outside wear are open to some slight criticism, yet the uniform is so established by tradition that it would not be well to suggest a change unless there were a more definite need.

The uniform of the day is prescribed by one central authority. This is, of course, necessary in regard to nearly every article of apparel, in order that all men may present a uniform appearance. Yet it should be considered that some men suffer from the cold more than others, due to a difference in susceptibility, not necessarily depending upon the body weight, and the man of nervous temperament will shiver and shake alongside his perfectly comfortable mate of more resisting and phlegmatic nature. This difference often results in increased illness as well as discomfort, and those of less resistance should be allowed the privilege of choosing warmer garments. As to the texture and durability of the Navy regulation clothing, it seems to be most excellent. The shoes constitute the really serious defect in apparel, as they are bad in shape and very few men can wear them, even after careful selection, with comfort. They are a constant cause of complaint and a source of incessant trouble to disciplinary officers and of discontent to the enlisted force. It would seem that any article of a uniform, which is so generally objected to on such legitimate grounds and which tends to impair efficiency, morally and physically, fails in its best purpose and is deserving of careful consideration. The new shoe adopted by the Army and Marine Corps might be copied with profit—in any event the regulation footwear should be improved and the importance of the matter is considered sufficient to warrant the appointment of a board for its study.

Cigarette smoking.—It has been brought to the attention of the Bureau from many sources that cigarette smoking is becoming a serious impediment to robust health in the Navy. This habit seems to have taken a decided impetus in the service since the Spanish war and has spread to incredible proportion. While wishing to avoid any discussion on the alleged evil effect of the cigarette itself, which is still a mooted question, it is desired to bring to the Department's attention its increased and immoderate use by the young enlisted men. In the opinion of the Bureau it is not the cigarette itself but its intemperate use which is to be condemned and corrected.

Surg. O. D. Norton makes the following comment:

> The bad effects of this habit are particularly imminent on board ship, where the confining space leads to such a degree of sedentary habit and the required physical drill is so moderate and limited that the muscles of extreme expiration are not brought into play. The leg and arm muscles of the men on ship may become tired, but invigorating walks are not possible, and there is no running, except for a few minutes during the physical drill after quarters. Indeed, one rarely, if ever, finds a man panting from healthful exertion or, in other words, forcing a full supply of fresh air to the remotest air cells of his lungs, so that nature is taxed to eliminate the nicotine which is constantly absorbed by the mucous membrane of the nose, mouth, throat, and large bronchi.
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> The convenience of the cigarette, its cheapness, the quickness with which a few deeply inhaled puffs will bring about the mild intoxication, all favor its use. One will notice on board ship that the small pocket in the blue shirt or white jumper is almost always stuffed out with a small package of tobacco and a package of rice paper. It is the exception to find a man cutting navy plug and rubbing it in the palm of his hand preparatory to a good smoke, in a pipe, as in the old Navy.
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> To give an idea of the number of cigarettes and the amount of cigarette tobacco consumed on board ship, Surgeon Norton has taken from the books of the U. S. S. *Missouri's* canteen the following statement that is regarded as a three-months' supply for the crew, the average complement being 700:

Cigarette papers	books	1.500
Smoking tobacco	pounds	1.200
Cigarettes	number	37,000

> This is the amount carried on ship and for use principally while at sea. The men also buy freely from bumboats and on shore while on liberty.

It is believed that if the use of cigarettes were forbidden all persons under 21 years of age on board ship our sick records would be smaller, and that it would foster the development of a better physique and enhance the general efficiency of the service. The Bureau favors a departmental order in the matter of cigarette smoking to this end.

Venereal diseases.—Admitting the notorious unreliability of statistics relating to the prevalence of what are popularly termed "concealed diseases," it is nevertheless undeniable that this class of diseases is responsible for a larger percentage of invalidism in the United States Navy than any other, and accounts, therefore, for the greatest number of sick days and consequent loss of services to the Government. Indeed, the progressive increase of all diseases included under this head in the naval service is alarming and calls for the most serious consideration, not only by the Medical Department, but by other naval authorities. Unfortunately the question is complicated and its complete solution made difficult or impossible by the fact that the ratio of these diseases in the naval service will always be a reflex of the ratio of these diseases in the surrounding community, and the Navy must look in part to the civil authorities, where lies the responsibility and remedy for the largest factor in the problem. But there is much that we can and should do in combating this great scourge along lines of education and of moral and physical prophylaxis.

It has been observed by Surg. N. J. Blackwood, U. S. Navy, Asst. Surg. H. A. May, U. S. Navy, and many others that not only does the frequency of venereal infections fluctuate in accordance with the community, the New England coast giving rise to a greater number of cases than New York, for instance; but infections show a marked difference in virulence, according to the port where they are acquired. For example, that which is contracted in Norfolk, Va., is of a more severe form and seems to require a much longer period of treatment than that acquired in any other port along the coast. Perhaps this is due to the fact that Norfolk, though a comparatively small town, is visited by a large number of seafaring men from all over the world, and thus the infections partake of the severity and nature of those diseases brought from the Mediterranean and other foreign ports, where the venereal conditions are notoriously bad. Of course, there are localities in New York City where much the same conditions prevail, but the foci of infection are more scattered, and our men do not reach them as easily as they do in a place like Norfolk. On the other hand, gonorrhea contracted in the small seafaring towns along the New England coast, while causing more sick days, is really much more amenable to treatment.

As bearing directly upon the foregoing considerations it is interesting to study the relative influence of life afloat and ashore, and a comparison of contributions to venereal invalidism, as between the force serving on cruising ships and that doing duty at shore stations, irrespective of locality, shows a tremendous numerical preponderance to the credit of the former. From this fact it would not seem ill-founded to conclude that whenever opportunities occur to enable the enlisted men to lead a more or less settled life, a powerful influence for good is exerted and those diseases dependent upon moral stability decline proportionately. Now that the Navy is so large an institution and established on a permanent basis, it would well repay the Department to give the social life of the men further serious thought and do all in its power to give reasonable certainty to the men that a full share of their time when in the vicinity of the United States can be lived with their families or in the midst of familiar civil communities where permanent and decent friendships have been established. The policy of the Department in identifying the various ships with certain navy-yards as regular home ports to which, in the ordinary course of events, they will always be assigned for repairs, has done much to foster the formation of home ties; to counteract in part the influence toward roving habits; to secure greater permanence of service among that class of valuable, self-respecting men which the service really wants to keep, and to enhance the dignity and moral continence of the personnel in general. It is in our calculations upon such results that we observe a union between morality and hygiene, and a step has been taken in the right direction for the mitigation of the "social evil" so detrimental to the naval service, because of its depressing effect on the morals, the health, and the working efficiency of the personnel. In further pursuit of this desirable end attention is invited, first, to the salutary effects of occupying the otherwise leisure hours of the enlisted force with outdoor athletics and other amusements within their own zone, thus relieving the existing dependence upon outside resources of uncertain character, and, second, to the need of reforming the regulations of all ships and providing convenient boats, if at anchor off from shore, so that liberty men may return for meals, if they so desire, without forfeiting the remainder of their leave. This practice is followed on some ships, it is said, with most gratifying results, in that it evidences an official interest in the welfare and comfort of the men; minimizes liberty breaking, desertion, and intemperance; creates a feeling of attachment to the ship; encourages orderly enjoyment of privileges, and withdraws the men from exposure to the advances and seductions of designing outsiders, who abound at the refreshment halls frequented by the sailor, at a time when he is most approachable and susceptible to influence. Moreover, it is believed that the past custom of meeting liberty requirements in tropical ports, where the resources of healthful and decent diversion are practically nil, but where the crews of our ships spent so much of their accumulated pay, actually operated as an encouragement in the sort of leisure occupation which is so overstocked with pitfalls and from which it should be our aim to protect the men. The Bureau, therefore, notes with pleasure that vessels which are cruising in the Tropics are now more frequently brought to cooler ports, often a home port, for the combined purpose of giving liberty and making necessary repairs. In these comments the Bureau is not considering the casual liberty granted at the various ports where ships appear from time to time in the prosecution of their work, but refers to those periodical occasions in the course of a cruise when ships proceed to some selected port with the principal and definite object of giving protracted liberty. All this makes for the reduction of venereal disease. Much can be done, also, in the line of prevention by proper instruction and advice, which should be undertaken by the medical officer on certain days during the time set apart for instruction in first aid, and the discharge of this responsibility must be accomplished with an entire freedom from any suggestion by word or manner that the subject under consideration is aught else than of serious import and far removed from mere "preaching."

The Japanese and German naval medical officers have taken up this matter, and their efforts in venereal prophylaxis, it is understood, are bearing good results.

The Bureau invites the Department's attention to the condition with regard to venereal diseases of many of the men transferred from receiving ships and barracks to seagoing ships. Cases of gonorrhea, chancroid, chancre, and adenitis have been thus transferred for active duty, some with and some without the knowledge of the medical officer, when in reality they were unfit for any but the lightest duty, and who, when put to work, completely broke down and had to be sent to hospital or else placed on the sick list under treatment, thus crippling the ship's force and accomplishing no good. These circumstances have been reported from time to time, and it is the Bureau's opinion, based on the practical experience of many medical officers, that no man suffering from a venereal disease should be sent to a seagoing ship under any circumstances, as he is almost sure to become a dead weight and a useless member of an active organization, and that such transfer should be discontinued, if necessary, by a positive order.

The scuttle butt.—The danger of the communication of syphilis and such epidemic diseases as mumps, etc., by the saliva through the medium of public drinking vessels has led naval surgeons with others to give much thought to the sanitary problem involved. The menace to health represented in the scuttle-butt cup of all ships is not imaginary, but very real, as the history of numerous instances attest. Numerous prophylactic expedients have been resorted to, among the most common and deserving of which is the provision of a container of one kind or another to hold an antiseptic solution for the submersion of the drinking cup after its use by each individual. This measure has not proven altogether satsfactory, owing to the carelessness and, in some cases, indifference of the patrons of the scuttle butt, to such a recognized extent, in fact, that on occasions when the need to observe this precaution was deemed of special importance a sentry has had to be posted to enforce it. Early in the past year Surg. M. F. Gates, U. S. Navy, presented a device of his own conception, which seems to be the best practical solution of the question. It consists of a sanitary terminal for the scuttle-butt faucets, a number of which may be installed in connection with the scuttle-butt drainpipe to the boiler feed tank. The idea is that of a bubbling spring, and the device consists in a trumpet-shaped discharge pipe, from the open mouth of which a man may drink without contact of the lips, and from which the overflow passes into the expanded end of the surrounding drain, the flow being governed by a spring faucet. This terminal was devised with a view to the entire avoidance of mouth-to-mouth use of a common drinking cup and at the same time avoiding waste of water, but it is also a means to saving time, for, with several terminals installed, as contemplated by the inventor, a corresponding number of men can satisfy their thirst at one time. The device should be officially known as the "Gates sanitary scuttle-butt attachment," and such recognition of the ingenuity it evidences is urged.

On February 7, 1906, the Assistant Secretary of the Navy authorized the construction and installation of four of these fountain terminals on the scuttle butt of the U. S. S. *Charleston*, and as the work of making and installing this device has been stated by the Department to involve little expense, and, moreover, as reports characterize the device as eminently satisfactory in every way, it is recommended that the Gates sanitary scuttle-butt attachment be adopted for general use and its installation on all ships authorized.

Medical Department in battle.—Naval experience in the past few years having developed the extreme importance of efficient organization of the medical department of ships in preparation for battle, and changes in construction, etc., having created new problems in arrangements for the care of the wounded, the Bureau is giving renewed consideration to this question in the light of modern ideas.

It was an admissible presumption that all medical officers realized their responsibility in this direction, but the annual reports did not satisfactorily evince a careful discharge of the obligation, and the Bureau was without assurance that the medical department of each ship was thoroughly or efficiently organized in conformity to its needs and within the possibility of its construction.

With a view, therefore, to supplementing its studies and securing an accessible and complete record of medical department organization for battle on each ship in commission the Bureau, on April 5, 1907, addressed a circular letter to the commanding officers, requesting that the medical officer of their respective ships be directed to prepare and forward a detailed report of such organization. This letter did not call for a discussion of the subject or a statement of opinion as to whether this or that part of the ship or disposition of the personnel of the surgeon's division would be the best in the organization of the medical department for battle, but for a statement of fact—the stations selected, with their proposed equipment, and the organization as actually laid down and ready for immediate operation in the exercise of medical department functions in battle. It was considered that this information would carry with it the presumption that the medical officer had used his best judgment and done all within the range of possibility and the approval of the commanding officer.

The reports received, which embrace nearly the entire list of ships in commission, show a readiness for the "great emergency" which is extremely gratifying, and although there is room for improvement in certain particulars the Bureau is now in closer touch with its outlying and delegated responsibilities and is in a position to point out defects and advise with respect to them.

It is the intention of the Bureau to call for similar reports from ships now in reserve or out of commission and the new ships as they go into commission, so that in time the Department, through this Bureau, will know to a certainty that the medical department of each ship is prepared to meet the demands of the wounded in the hour of supreme test. In war, where all is sudden and uncertain, nothing that can possibly be foreseen in the surgeon's arrangements should ever be left to chance, and warlike efficiency of the individual ship, like the whole fleet, depends upon the preparedness of its constituent divisions, all of which then acquire, more than at any other time, an interdependent and cooperative importance, to the end that victory may be more certain or defeat not ignominious by disorder.

The progress noted in construction and ordnance must be accompanied by equal development in the medical department. In this connection, and with a view to perfecting the organization of the battle ships and large cruisers especially, the Bureau has under advisement the desirability of appointing a board of medical officers who have studied this subject, who are familiar with the most modern ideas in the premises and combine discrimination and judgment, and who by special attention to the subject entertain a thorough understanding of its vital importance. It is believed that the organization of the medical department and its preparation for battle in every particular should not be left to the possible difficulty and embarrassment of one officer, and the function of the board, therefore, would be to study the plans and formulate a tentative scheme along approved lines for each ship or type of ship before or soon after going into commission. The commanding and executive and medical officers of each ship, as taken under consideration, would properly be members pro tem. of such a board and as such would adapt and develop the organization on board the particular ship concerned. A draft of the organization as perfected would then be transmitted to the Bureau for file and any subsequent changes as circumstances might require would be similarly transmitted for the correction of the original draft.

Instruction in first aid.—As regards the enlisted personnel of the medical department more frequent drills in the varied duties of the hospital corps during general quarters must be carried on and, when their training is sufficiently advanced, they should be valuable assistants in the instruction of the crew. Every enlisted man should receive careful drilling in first aid, and this instruction should be given with the regularity observed in drilling with arms and with such thoroughness as will give them a certain sense of independence and helpfulness in the presence of wounds. Torpedo-boat service represents a special need of such knowledge.

It has been held that owing to the brevity of naval engagements and the proximity of all hands to the dressing stations it is not necessary to supply men-of-war men with first-aid packets, but this reasoning is not tenable in the light of modern ship construction and in face of the ever-present possibility of landing parties, when the circumstances and hazards of service are exactly parallel to those of the Army. First-aid dressings are still very important to ships and their distribution in anticipation of battle devolves upon the medical department. One of the fruits of the deliberations of the joint board of Army and Navy medical officers, convened by the President, was the formulation of specifications for a uniform first-aid packet, and, following the Department's approval, contracts were immediately let for their manufacture and supply to the naval service. Uniform hospital-corps pouches in two sizes were also specified for and these will be contracted for and distributed as the existing supply becomes exhausted.

Noncombatants assigned to the surgeon's division.—The small hospital corps complement permitted on all ships and the inability of the Bureau, in the circumstance of the present shortage of the Hospital Corps, to detail a greater number, even if allowed, indicates the necessity of assigning noncombatants as relief crews to assist in the work of succoring the wounded. These relief crews should consist of four men each and have no other duties to perform, but in case the complement will not permit of this they should be drawn from the station from which they can be spared for temporary service. They will usually consist of such members of the crew as musicians, cooks, and mess attendants, who should be specially trained in giving first aid, and when the ship is being cleared for action the men so assigned should report to the medical officer to receive final instructions in regard to their duties. This enlargement of the surgeon's division for war purposes and drill is brought to the Department's attention in the hope that some action may be taken to insure, with more certainty, provision for the numerical efficiency of those charged with the care of the wounded.

Protection of the ears.—The imminent danger of the serious and in a measure preventable accident, rupture of the eardrum, demands consideration in preparation for target practice or battle, and every man should be compelled to employ pledgets of cotton or a worthy substitute for filling the auditory orifices. The necessity of compulsion in a matter so rational may be surprising, but the fact is neither officers nor men take kindly to the use of such artificial protection, though the practice is more universal than it was a few years ago. Many of the gun crews in the Navy suffer from deafness of variable duration after target practice, and in a severe naval action it is probable that the impact of suddenly compressed air or repeated violent air vibrations, consequent upon big-gun fire and the bursting of the enemy's shells, would produce not only deafness (temporary or permanent) among the personnel of the ships, but also a dazed mental condition, which is a recognized result, that would have the effect of physical disablement.

There is a difference in the effects of mere noise, per se, and the shock of concussion, for it is said that when it is expected the ear marvelously accommodates itself in advance, and the concussion is more or less discounted; but when the ear or brain are not forewarned the danger of serious and extensive damage is most imminent. For example, experience has shown that men are never so much affected by their own guns as a gun fired suddenly without their knowledge.

The time has come when a careless disregard of the effects of gun fire upon the hearing and upon the nervous system, through the ear, should be condemned by the authorities. There is no cure for established gun deafness, and no power on earth can restore a shattered auditory nerve. Prevention can alone deal with it, and in bringing the matter to the Department's notice the Bureau hopes that some action may be taken.

The Bureau has been making some study of the various expedients and devices suggested for such protection with a view, ultimately, of indicating those deserving recognition and from among which choice may be made, but the adoption of any one to the entire exclusion of others within the range of efficiency is neither necessary nor desirable. Action is needed only to the end that some efficient protection be made obligatory among those exposed to the concussion of gun fire or shell explosion, and the Bureau recommends a general order to that effect.

DISASTER ON THE U. S. S. GEORGIA.

On July 15, while the U. S. S. *Georgia* was engaged in target practice with other ships of the fleet in Cape Cod Bay, the accidental premature ignition of a powder charge in the after 8-inch superimposed turret resulted in the grave injury from burns of the entire personnel of the turret, comprising 21 in all. In the cases of 3 officers and 7 enlisted men the injuries were fatal, some almost immediately so, 6 dying on board ship en route to port, while the other 11 were more or less seriously injured. Some of these have recovered, but several are still under treatment at the naval hospital, Chelsea, Mass., to which the dead and other victims of the accident were removed as soon as the ship reached the Boston Navy-Yard. Medical officers and hospital corps men were on hand with transportation facilities and everything was in readiness to receive them at the hospital.

The liability to such accidents from time to time, in spite, apparently, of every precaution, should make us hesitate to belittle the value, in the absence of hospital ships, of such sick accommodations as are now provided on our new ships. It is not the workaday needs, but emergency demands, which establish the necessity for adequate preparation, and a wise foresight requires that this fact be kept clearly in mind without occasional sad reminders.

Throughout the trying days and nights which followed the unhappy incident the hospital staff was aided in their attendance upon the injured by the members of the Medical and Hospital Corps from the various ships and the yard. The hospital staff itself was augmented by the detail for temporary duty of 10 additional hospital corps men, 1 hospital steward from the *Indiana*, 2 hospital apprentices, first-class, from the *Lancaster*, and 7 hospital apprentices from the *Franklin*.

The bodies of the dead were all sent to their homes for burial, with the exception of George Miller, ordinary seaman, who was buried in the naval cemetery in the hospital grounds.

FLEET SURGEONS—THEIR DUTIES IN RELATION TO FLEET MEDICAL DEPARTMENT ORGANIZATION.

The interrelation of the units of the medical establishment afloat in squadron or fleet has by past experience been shown to be peculiarly and regrettably lax in comparison with the advance in naval organization noted in other branches of the service. And the duties of fleet surgeons are as uncertain and ill defined as the position itself. Provision for the official recognition of matters coming properly within the province of the fleet surgeon is too limited and their surveillance of sanitary and medical matters too confined under present regulations.

This lack of scope in sanitary and medical department supervision is due largely to the absence of imperative wording in the regulations relative to fleet surgeon's duties, which limits individual action unless ordered, or at least sanctioned, by fleet authority. The modern tendencies to fleet maneuvers, in which numerous ships are kept together, have naturally led to the adoption in some departments of methods better suited to the changed conditions than to those prevailing a few years ago. The Bureau believes that similar changes should be applied to the medical department of a fleet, for to secure general efficiency and unity, simultaneous and equal improvement should be made in every direction. If any one department has not kept pace with advances in the others, the fleet is weakened as a whole, and if any one department is overlooked or undervalued through concentration of thought upon others considered more important, calamity or disaster may well occur. It is during times of peace that consideration should be given to such questions and every energy bent in the direction of preparedness to meet all exigencies.

It is natural and proper that each department should feel that its work is of the greatest moment, and, when enthusiasm and energy coexist they should be encouraged in every way for the development of individual initiative. If such an attitude is properly commended and assisted, eventually benefit to the service at large will surely result.

Observations and studies show that the enlargement of our fleets and their activity has necessarily increased the work and enlarged the responsibility of each department so extensively that a central head with liberal authority in his own field is becoming more and more essential in every department to secure the proper control and coordinate action of all ships. The necessity for this is plainly shown by a study of the evolution of the present ordnance department of our fleet, to which, with a view to homogeneity and intelligent concerted action, a fleet ordnance officer has been added. This has led to the most marked advance in the separate ships and also in the fleet as a whole.

These results, it is believed, are due to the constant, free intercourse that the fleet ordnance officer enjoys with the ordnance officers of the individual ships of the fleet. As a matter of fact, he is in almost daily touch with all, and the exchange of opinions in his conferences has been of the greatest value. Apparently trivial things are thus brought to his notice and corrected. Again, a suggestion or hint here or there proves, on close investigation, to embody a valuable improvement, and so an interest is aroused, good results are obtained, and uniformity of action secured.

This illustration is cited as an argument in favor of carrying on the duties of the medical department of the fleet along similar lines. The question naturally arises, "why has this not been done?" No specific regulations appear to be laid down for the ordnance officer, but there has been a marked difference in the results recently obtained in this department. This is partly due, no doubt, to the different points of view from which ordnance and medical service are viewed and the unequal importance, interest, and sympathy accorded the two under present conditions.

It is not apparent, however, that the value of the guns and their mechanical condition are of greater moment than the physical condition of the crew that manages them. From its point of view, the Bureau is constrained to believe that the efficiency of the whole service depends upon the mental, moral, and physical condition of the personnel, for it is man, with his intellectual and physical attributes, who operates and controls the ship and gun. To perform these duties efficiently, the physical functions must be kept in healthy equilibrium. All admit the logic of the contention, still, singular as it may seem, the truth is not given general or practical acceptance.

It is urgently required that a more liberal policy be instituted and that all demands for improvement, irrespective of source, be recognized as appeals for the benefit of the whole service. Each branch of the service has a function that may be the all-important one at some critical moment, and weakness in one part will disturb the equilibrium and reflect discredit upon, if it does not actually impede, the progress of another. The aim should be for broad results, and opportunities for development should be extended equally and impartially.

There is need of revising and collaborating the duties of the fleet surgeon in the light of changed conditions, and of giving authority for discretion and freedom and breadth of action in the discharge of his purely professional responsibilities as supervising medical officer and sanitarian of the fleet. It is therefore recommended that a board of officers be appointed to formulate and submit suggestions in this matter with a view to their incorporation in the United States Navy Regulations. There are splendid opportunities for important work in this position, and the Bureau intends, with the Department's approval, to do its share toward providing that they shall not be neglected, by requiring of all candidates for the grade of medical inspector an examination respecting the duties of fleet surgeons.

HOSPITAL SHIPS.

As early as 1905 the problem of the care of the sick and wounded in hospital ships began to take a prominent place in the thoughts of medical officers of the service, and in that year Surgeon-General Tryon first called attention to their value and importance. This subject has been discussed in the Bureau's annual reports and elsewhere, and has been urged for serious consideration ever since the late war with Spain, when this need was recognized and met by the commissioning of the *Solace*, the *Relief*, and the *Missouri*, representing both branches of the service. The splendid record of these ships and those employed in the Russo-Japanese war confirms beyond reasonable doubt all arguments advanced in favor of the equipment of such vessels and their employment as auxiliaries to squadrons, and has demonstrated the range of action of this method of handling the wounded of a naval engagement. The idea of a hospital ship as an integral unit of a fleet is, however, not a new conception, for the necessity of such auxiliaries both in peace and war was recognized at a period long antedating their adoption. The arguments for their adoption are both humanitarian and military, and their importance is conceded by the majority of civilized nations, and, while this importance has received active recognition by the navies of the world only in time of war thus far, it is hard to understand why a progressive nation like the United States should apparently lack sufficient conviction to take conclusive action in adding this humanitarian provision to our facilities for the care of sick and injured in the fleet.

A joint board of medical officers of the Army and Navy, convened by Executive order to consider improvements in the first-aid dressings and uniformity of equipment for the medical departments of both services, made report under date of February 17, 1906, and in that report submitted a recommendation that plans and specifications for hospital ships be prepared for consideration, looking to the building of such vessels for the Army and the Navy. In presenting this part of their report the hospital ship is characterized as a long-felt and special need. It might be well to mention some of the special occasions when the presence of a hospital ship among the vessels of the Atlantic fleet would have been of the greatest value in increasing its efficiency: In 1905, during the epidemic of measles at Guantanamo, and during the outbreak of typhoid fever on the *Kearsarge* and other ships cruising in the Mediterranean, a hospital ship was sorely needed. In the latter instance it was difficult to have the officers and men suffering from an infectious disease admitted to hospital; obstacles and prejudice had to be overcome, and only by insistence was success attained. The need of a hospital ship was also instanced by the development of 44 cases of typhoid fever on the *Pennsylvania* early in the year 1906, and again by the experience of the *Connecticut*, on which an epidemic of typhoid fever developed last winter, making it necessary for a powerful battle ship to leave her important work on the drill grounds to convey the forty-odd typhoid patients and many others from the various ships of the fleet to the naval hospital, Brooklyn, N. Y. Again, there was occasion for the useful employment of a hospital ship at the time the *Columbia* was diverted for ambulances purposes. At one time during the year she transported a large number of sick, most of them being cases of typhoid or malaria, from the Isthmus of Panama and the United States Atlantic Fleet, then at Guantanamo Bay, Cuba, to a naval hospital in the United States. For the transportation of any considerable number of sick, this vessel was entirely unsuited, as the sick bay is unusually small, having but six bunks, and the facilities for taking proper care of the very sick or injured are entirely inadequate. Thus, five recent and notable examples of the value of hospital ships have been presented. Furthermore, owing to the large and increasing size of the fleet which annually congregates and mobilizes in Carribean waters, the matter of accommodating the sick, with the always inadequate facilities south of Norfolk, and now south of Washington, owing to the renovation of the Norfolk hospital, and of transporting the sick, is a constant source of much concern. The various tenders, tugs, or torpedo boats are not adapted to such service; they have no accommodations for any but the roughest care of patients, and, should such cases be of an infectious or contagious nature, well-founded objections naturally arise to complicate matters. The presence of a hospital ship would solve all of these problems.

Medical Inspector Howard E. Ames, U. S. Navy, fleet surgeon of the Atlantic Fleet, has this to say in regard to the broad question of our needs in this respect:

> When a casual or even an extended examination is made of the medical department of a modern battle ship, one is impressed with the generous provisions for the emergency care of the sick and injured. They seem at first blush to fill every requirement, and they do so far as the ordinary demands of the ship are concerned. The advance over the old ways of but a few years back is most striking, and an honorable pride is felt that it is so, and that we have advanced in keeping with the demands of modern science. Actual experience with sudden emergencies is the only test that shows the defects or rather deficiencies of untried theories. A careful study of such cases is of the greatest value, and it is only when we are called upon to meet and overcome such unexpected demands that we feel our weakness. We can say without reflection or need of specific substantiation that the medical department of this fleet has had ample occasion to appreciate this, and when we ask, "Have we done all possible or within our knowledge?" we can only answer that we have not, but that we have done all within our power with the appliances at our disposal. The feeling that "it might have been otherwise" is the thorn of discontent in reviewing our work. It is then our duty to prepare to prevent the repetition of like occurrences.
>
> To correct these errors and meet the present requirements, demands an enlargement of facilities; but this can not be done on the individual ships for obvious reasons. The allotting of space for the medical department, it seems to me, has reached its limit; in fact, with many the opinion is strong that it has been exceeded. I can not see how more space can be asked for, and still I am at a loss to see how it is possible to meet actual demands or expectations on a battle ship with our present allotment. I must, at the cost of prolixity, try to support my position.
>
> The demand in all departments is for more room. I admit all their claims but join the others with the same demand, unless other provisions are made. A laboratory and bacteriological outfit should be in every fleet; modern medicine demands it; but that requires room in a separate compartment, for it carries with it a danger that can not be lightly cast aside. An X-ray outfit is also required; but, like the laboratory outfit, it requires a separate space. A dental outfit, with one skilled in that branch, is demanded; that also requires extra room. I mention these without details. No single ship can carry all these requirements from lack of space, yet no one can deny their importance. In the advanced state of medical science they are essentials, and demands for their supply are entirely proper.

There is but one solution, viz, a fully equipped hospital ship, and my words are not to be interpreted to mean any composite vessel combining several functions, but one solely for the care of the sick, at least one should be provided for each fleet.

Such a vessel would not only add to the efficiency of the fleet, but to the individual ship. The sick quarters on the single ship could then be reduced, the comforts of the sick and injured would be greater, a sympathetic and quiet environment would be secured, which is so essential to success in grave troubles and which shortens and lightens the illness by the increased comforts. We would secure the numerous advantages that we all know exist and are obtainable off the ships, but which we never ask for, in the knowledge that it would be impracticable to carry all requirements on a fighting ship.

The hampered space, the poor location, the inadequate light, the defective ventilation, the lack of appliances, food, and limited skilled force, the nonseparation of cases, the depressing influences from a supposed lack of sympathy, and the absence of facilities so needed in many cases are all factors of great moment to the afflicted. I can recall the time when we stood in abject misery before cases beyond our knowledge of treatment; now we stand helpless to give our full knowledge to the sick or injured through lack of facilities.

It would not be seemly for me to cite cases to sustain these opinions, but if required numerous instances could be given. A hospital ship would be supported by everyone in the service, if they would only recall an illness with its cravings, gnawings, and sufferings. A Japanese officer of high rank remarked to me in connection with this very subject, "We are apt to forget that it takes eighteen years of life to secure a soldier or sailor for the country. We willingly offer him to be killed in legitimate warfare, but we can not sacrifice him in a few days to a preventable or curable trouble or injury."

It is indeed strikingly true that the nation has no moral right to ignore admittedly necessary provisions for the care of those stricken in its service, nor is it economical to do so from any point of view. The hospital ship is and will continue to be an increasingly essential part of a properly organized fleet, and the antiquated present practice of retaining and imperfectly caring for the seriously ill or wounded on board the fighting ships in confined and restricted sick quarters may, by this means, be supplanted by their removal to a vessel flying the Red Cross flag, offering more commodious accommodations and fitted with every modern appliance for the comfort and safety of the stricken.

Furthermore, this transfer of the sick and injured and dead to hospital ships becomes imperative for military reasons, and it should be effected as soon and as often as opportunity occurs, so that the fighting ships may be kept in an unhampered condition and fit to engage the enemy without undue delay and under the most favorable circumstances.

A large sick list, a personnel crippled by casualties or enfeebled through climatic or other causes, all constitute sources of weakness to any ship and a cause for anxiety in times of emergency. In the future movements of the ship the captain must consider the number of disabled, even though the number is not so great as to seriously embarrass navigation. The circumstances of naval warfare in which the control of the sea is of paramount importance are most unfavorable for a ship to seek a friendly port and, failing any relief at sea for a crippled crew, the fighting ship must perforce give up much of her valuable space for hospital purposes, depending on the number of casualties, and thus inevitably impair both her offensive and defensive power.

The medical history of the wars of 1894–95, 1898, and 1904–5, if it bears any lesson, teaches us very clearly the great need of such ships in the organization of our military and naval establishments and their invaluable place in preserving the lives of our sick and wounded soldiers and sailors. The importance, therefore, of the attendance of hospital ships upon naval engagements has been definitely settled, and as this function, by its very nature, embraces the necessity of their presence in squadron on all occasions of the large and extended exercises and evolutions, if for no other purpose than necessary drills, their complete recognition is assured.

The advantages accruing from services which they can render must be apparent. Certainly they can not be seriously questioned by anybody acquainted with conditions of the present day. Aside from the opportunity which peace offers for becoming acquainted with their interior administration and general duties as a ship, with a view to greater efficiency in emergencies, there are well-defined service needs which they would meet.

From a monetary standpoint they would represent economy to the Government in the reduction of existing necessarily frequent transfers of those temporarily disabled; in the transportation of the permanently or indefinitely disabled, and in the minimizing of permanent invalidism and consequent pension drains through the offer of satisfactory treatment.

From a military standpoint they would maintain efficiency by the preservation of those trained to certain duty on the different ships; they would free the commander in chief from an ofttime inconvenient and, indeed, actually disabling dependence upon base hospitals, by giving him his own floating hospital as an auxiliary to accompany him in all evolutions, and would relieve him from more than momentary consideration of the sick of the fleet in prosecuting his military exercises; they would serve to relieve all anxiety concerning a ship's crew upon the development of a contagious or infectious disease, and would thus secure the integrity of the fleet; they would serve as supply depots from which to replenish surgical supplies on the battle ships; in fine, they would furnish a means by which to independently maintain the squadron personnel in a state of highest physical condition, and, further, would offer asylum to the disabled and militarily useless members of the crew up to the last moment before battle, thus clearing the spaces required for the accommodation of those injured in battle and leaving the ships' medical staffs free to devote all their energies to them.

Beyond and above all these arguments in support of the contention for hospital ships is their certain benefit to the morale of the command. Not only will the transfer of the dead and seriously wounded from the presence of the crew, which is made possible by a hospital ship, remove a very potent depressing influence, but the evidence comprised in a hospital ship that a generous Government is making every reasonable provision for their care in disease and for alleviating the suffereing incident to the casualties of war would inspire the crews with confidence and be an additional encouragement to the officers and men to perform their duties with proper disregard of self. In this connection it is to be remembered that every consideration which makes for naval prosperity and success is of importance, and few, perhaps, more than that which tends to give confidence to the combatants in a knowledge of the sure assistance which awaits them, should they be wounded in battle. Seamen, though in other respects so inattentive to their own welfare, in no small degree appreciate the merit not only of their surgeons, on such occasions, but the material provisions for their welfare.

In 1905, $50,000 was spent on the U. S. S. *Relief*, the hospital ship of the United States Navy, with the expectation that she would be put into commission immediately, yet she has remained idle at Mare Island for two years, in spite of the repeated representations of her pressing need in service. It should be realized that it is not alone the conditions of war which develop and establish the relation of hospital ships. The conditions of peace, as has been so often pointed out, make their legitimate demands for hospital ships, and service at such times should help to prepare them for the great emergency of war.

The *Relief* is the only hospital ship which the United States Navy has, and, excellent as she is in many respects, she represents an adaptation and, from the aspect of a model, is sadly wanting. "It must be understood that it is no more possible to take an old ship and convert her into a model hospital ship than it is to take an old house and transform it into a model hospital ashore. As certain constructions are designed and fitted for distinct purposes, so a hospital ship should be (especially designed and) built from the beginning with the single idea that it is for hospital purposes and nothing else." Nor is it possible to suddenly convert a merchant ship except as a makeshift in the moment of emergency, but if there are enough regular hospital ships, with trained crews, in commission to meet immediate demands, the delay in providing others need not be felt and the expeditious alteration and outfitting of these may be insured by selecting a certain number of ships of the merchant marine and drafting complete plans for their conversion ready for application.

The service should not be obliged to wait until the time of urgent need arrives in order to secure action on this vital matter. It is too easy then to take everything for other purposes and leave the medical officer to meet his responsibilities in the emergency as they arise with what may be at hand. This is discouraging to the medical officer, but it is more than discouraging to the sick and wounded.

It is represented by another Bureau that high-speed ambulance ships might serve to answer every requirement; but it would seem from the attitude taken that much of the character of hospital ships and many of their functions in peace and war, particularly the former, have been entirely overlooked or not given their deserved importance. If the need of any ship for the handling of the sick and wounded is conceded, it would better be one of broad utility, like a hospital ship, than one with the restricted appointments of an ambulance ship, for a hospital ship, with superior speed as a sine qua non, in order to follow and keep as constantly in touch with fighting ships as attending conditions will permit, and be prepared to respond to orders from the commander in chief, or to go rapidly to the assistance of a sinking, burning, or otherwise disabled ship, which has been left isolated or has retreated beyond the range of fire, is capable of doing all that we could expect of an ambulance ship and much more.

Both economy and efficiency dictate this decision, for hospital ships are fitted to administer that immediate and thorough and final treatment so essential to the welfare of all cases, and are prepared to transport the disabled in the most humane manner to naval base hospitals when necessity requires, as well. The need of hospital ships and ambulance ships has been maintained, and both were employed in the Russo-Japanese war, but surely, if one type only is to be provided, there can be no choice as against hospital ships. In this respect, it is interesting and instructive to note, from no less an authoritative source than the surgeon-general of the Japanese Navy, that the progress toward recovery of the cases which were transferred to hospital by hospital ships was much more favorable than in those sent back by the ambulance transports.

Two vessels of this type of moderate size to cost $1,500,000 each, one for the Atlantic and one for the Pacific, would do great and humane work in time of peace, and with the advent of war would be ready for instant service with the first fleet prepared for action. In preceding reports the Department has been informed that the Bureau of Construction and Repair has laid down plans for a model hospital ship with a capacity of 300 patients, based on plans prepared by this Bureau, which, it was thought, would best meet service requirements. These plans are now on file ready for execution, and in view of the reasons set forth, the Bureau strongly recommends that an appropriation of $3,000,000 for the construction of two suitable hospital ships, one for the Atlantic side and one for the Pacific, be requested of Congress.

STATISTICAL REPORT OF THE HEALTH OF THE NAVY AND MARINE CORPS FOR THE YEAR 1906.

The health of the Navy and Marine Corps for the calendar year 1906, as shown by the statistical returns, was good, the ratio of admissions to the sick list per 1,000 of strength being greater for last year, but less than for the ten preceding years.

The average strength of the active list during the year 1906 was 42,529, which is an increase of 1,316 over the previous year, the average strength of 1905 being 41,313. Returns were received by the Bureau of Medicine and Surgery from a force of 41,690, the difference, 839, representing the crews of small vessels not provided with medical officers, officers and men on leave, and those on special or detailed duty at places from which medical returns in detail are not received. Reports of death are received from the total force, and the figures representing that strength are used in computing ratios of death, but all other ratios are based upon the number shown by the returns of the Medical Department.

The total number of admissions for all causes was 32,517, the ratio per 1,000 of strength being 787.23, as compared with a ratio of 714.81 for the previous year and 788.18 for the ten preceding years. There were 27,452 admissions for disease and 5,065 for injuries, giving ratios of 658.47 and 121.49, respectively. The corresponding ratios for 1905 were 594.82 and 106.67, from which it will be seen that the admissions for diseases and injuries were greater than in 1905.

The daily average of patients was 1,420.44, and the ratio per 1,000 of strength 34.06, being greater than the previous year, when the daily average was 1,250.12 and the ratio per 1,000, 31.55. The total number of sick days was 518,461, or an average of 12.43 sick days for every man in the Navy and Marine Corps, and the average duration of the treatment for each case was 15.94 days. During 1905 the total number of sick days was 456,296, the average per man 11.51, and the average duration of treatment 16.11 days.

The number of persons invalided from the service during the year for disease and injury was 1,117, giving a ratio of 26.26 per 1,000 of strength. The corresponding figures for the previous year were 1,201 and 29.07, respectively. The ratio for 1906 is lower than that for last year and of the ten preceding years. The discharges for disability include 908 for disease and 209 for injury, with ratios per 1,000 of strength of 21.35 and 4.91, respectively. The corresponding figures for 1905 were 1,023 and 4.38, with ratios per 1,000 of strength of 24.76 and 4.38, respectively.

There were 241 deaths during the year, giving a ratio of 5.66, which is considerably less than that of the previous year (6.48) and less than the average of the ten preceding years (6.63). One hundred and forty-four deaths occurred from disease, with a ratio of 3.38, and 97 from injury (including poison), with a ratio of 2.28. Among the causes of admission to the sick list gonorrhea stands first, with 2,640 admissions, and malarial diseases, with 1,854 admissions, stands second.

The diseases causing the largest number of admissions to the sick list stand in the following order: First, gonorrhea, 2,640; second, malarial diseases, 1,854; third, tonsillitis, 1,375; fourth, bronchial affections, 1,211; fifth, wounds, 1,211; sixth, syphilis, 1,147; seventh, epidemic catarrh, 1,076; and eighth, rheumatic affections, 980.

The following table shows a comparison of the epidemic diseases with the previous year:

Epidemic diseases.

Disease.	1906.	1905.	Disease.	1906.	1905.
Epidemic catarrh	1,076	926	Scarlet fever	19	52
Mumps	634	242	Rubella	10	25
Diphtheria	20	143	Cerebro-spinal meningitis	17	21
Measles	376	121			

Admissions for tuberculosis, typhoid fever, and pneumonia were 206, 230, and 234, respectively. The admissions for the same diseases in 1905 were 243, 172, and 145, respectively.

Venereal diseases caused a decided loss of efficiency, with 7,273 admissions, which is an increase of 1,119 over the admissions for 1905. The admissions for these diseases show only approximately the prevalence of venereal infection in the Navy, owing to the fact that a large number of cases of chancroid, and especially of gonorrhea, are not admitted to the sick list, and hence are not included in the statistical reports. Venereal diseases give a total of 140,352 sick days, which is equal to the entire loss of the service of 384 men for the year. Admissions for alcoholism were 294, as compared with 288 for the previous year. Admissions for injuries were decreased during 1906, amounting to 4,465, with 82 deaths, as compared with 4,756 admissions, with 139 deaths, for 1905.

In comparing these returns with those of the previous year it is noteworthy that, though the ratio of admissions to the sick list per 1,000 of strength is greater than 1905, the mortality is less than that of 1905 and less than that of the ten preceding years.

Statement of the work done by the Record and Pension Division of the Bureau during the fiscal year ending June 30, 1907.

Pension cases remaining on hand June 30, 1906	41
Received during fiscal year ending June 30, 1907	1,809
Answered during fiscal year ending June 30, 1907	1,829
Remaining on hand June 30, 1907	21
Cases for board of medical examiners received and answered	301
Cases for retiring board received and answered	34
Reports of death received	265
Reports of medical survey received and acted upon	2,275
Cases from Civil Service Commission received and answered	85
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	3,659

RECRUITING.

The following table shows the record of enlistments and rejections for the year 1906:

Where examined.	Number examined.	Number accepted.	Number rejected.	Color-blind.
Receiving ships:				
Wabash, Boston, Mass	179	133	46	....
Hancock, New York	1,216	647	532	37
Lancaster, Philadelphia, Pa	314	183	128	3
Franklin, Norfolk, Va	447	213	210	24
Independence, Mare Island, Cal	268	200	65	3
Philadelphia, Puget Sound, Wash	300	282	15	3
Total	2,724	1,658	996	70
Naval and marine rendezvous:				
Annapolis, Md	180	167	13	....
Boston, Mass	1,351	776	547	28
Baltimore, Md	747	431	300	16
Buffalo, N. Y	668	342	300	26
Chicago, Ill	2,308	1,157	967	184
New York, N. Y	2,647	1,625	930	92
Philadelphia, Pa	2,288	870	1,393	25
Pittsburg, Pa	938	420	487	31
San Francisco, Cal	395	242	143	10
Washington, D. C	535	313	197	25
Cincinnati, Ohio (temporary)	1,143	523	533	37
Denver, Colo. (temporary)	487	321	150	16
Kansas City, Mo. (temporary)	1,067	570	451	46
Minneapolis, Minn. (temporary)	993	663	313	17
Omaha, Nebr. (temporary)	592	341	235	16
Seattle, Wash. (temporary)	168	122	46	....
St. Louis, Mo. (temporary)	1,318	722	565	31
Total	17,825	9,605	7,570	650
Recruiting parties in the field	8,523	5,308	3,065	150
Ships and shore stations other than naval and marine rendezvous	2,836	2,134	665	37
Grand total	31,908	18,705	12,296	907

Number examined	31,908
Number rejected per 1,000 for all causes	413.74
Number rejected per 1,000 for color-blindness	28.42
Number of first examinations	29,178

INSANE OF THE NAVY.

Number of patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1906	171
Admitted during the fiscal year ending June 30, 1907	55
Total	226
Discharged during the fiscal year ending June 30, 1907 (7 died, 36 recovered, 4 improved, 1 eloped)	48
Remaining in that institution June 30, 1907	178
Number of patients from the Navy and Marine Corps in the Mendocino State Hospital for the Insane on June 30, 1906	1
Admitted during the fiscal year ending June 30, 1907	6
Total	7
Discharged during the fiscal year ending June 30, 1907 (2 discharged unimproved, 5 transferred to the Government Hospital for the Insane, unimproved)	7
Patients under treatment in both institutions June 30, 1907	178

SUMMARY FOR THE YEAR 1906.

[Cases met with in hospitals appear first, as a rule, in the returns from vessels or stations where the disease or injury was contracted, while cases originating in hospitals appear in Table XII in the column headed "Admitted."]

NAVAL HOSPITALS.

Hospital.	Number of cases under treatment.				Number discharged to duty.				Number invalided from service.				Number dead.				Total number of sick days.	Average number daily under treatment.	Average number of days' treatment per case.
	Remaining from last year.	Admitted and re-admitted during the year.		Total.															
		Diseases.	Injuries.		Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.			
Cavite, P. I.	104	743	86	933	503	52	555	594.85	66	19	85	91.10	3	1	4	4.28	37,915	103.87	40.63
Chelsea, Mass.	77	672	64	813	578	40	618	760.14	66	12	78	95.94	5	1	6	7.38	24,338	66.66	29.92
Mare Island, Cal.	75	667	80	822	458	61	519	631.38	128	18	146	177.61	9	2	11	13.38	32,668	89.50	39.74
Medical School, D. C.	......	22	5	27	8	......	8	296.29	......	......	......	....	......	......	......	....	1,068	11.60	39.55
Newport, R. I.	55	981	64	1,100	896	54	950	863.63	31	6	37	33.63	17	2	19	17.27	26,417	72.37	24.01
New York, N. Y.	120	1,070	126	1,316	806	88	894	679.33	107	27	134	101.82	13	5	18	13.67	53,994	147.92	41.02
Norfolk, Va.	180	1,087	123	1,390	922	107	1,029	740.28	90	20	110	79.13	21	1	22	15.82	55,883	153.09	40.20
Pensacola, Fla.	37	109	9	155	85	9	94	606.45	33	1	34	219.35	9	......	9	58.06	12,188	33.99	78.63
Philadelphia, Pa.	37	543	57	637	468	48	516	810.04	42	11	53	82.04	5	......	5	7.84	17,135	46.94	26.89
Port Royal, S. C.	8	34	1	43	32	1	33	767.44	4	......	4	93.02	......	......	......	....	1,426	3.90	33.16
Portsmouth, N. H.	11	108	14	133	92	9	101	759.39	12	2	14	105.26	......	......	......	....	4,632	12.69	34.82
Puget Sound, Wash.	15	108	26	149	101	25	126	845.63	12	1	13	86.57	......	......	......	....	3,481	9.53	23.36
San Juan, P. R.	20	322	31	373	254	28	282	756.03	6	1	7	18.76	2	1	3	8.04	11,411	31.26	30.59
Sitka, Alaska.	1	18	13	32	15	10	25	781.25	......	1	1	31.25	1	......	1	31.25	585	1.60	18.28
Washington, D. C.	36	328	45	409	301	36	337	823.96	22	5	27	66.01	2	1	3	7.35	9,609	26.32	23.48
Yokohama, Japan.	25	192	22	239	159	17	176	736.40	14	4	18	75.31	......	......	......	....	12,794	35.05	53.53

STATISTICAL TABLES.

The following statistical tables give in detail the data on which the statements in this report are based:

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1906.
2. *North Atlantic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1906.
3. *Pacific Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hispitals, discharges from the service, and deaths on each ship for the year 1906.
4. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1906.
5. *Receiving ships.*—Names of ships, average complements, admissions for disease and injury, sick days, average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1906.
6. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1906.
7. *Force afloat.*—General aggregate, 1906.
8. *Force afloat.*—Detailed statement, 1906.
9. *Navy-yards, marine barracks, and other shore stations.*—General aggregate, 1906.
10. *Navy-yards, marine barracks, and other shore stations.*—Detailed statements, 1906.
11. *Naval hospitals.*—General aggregate, 1906.
12. *Naval hospitals.*—Detailed statement, 1906.
13. *Report of vaccination for the year 1906.*
14. *Prevalence of special diseases (relation by scale).*—For the year 1906.
15. *Mortuary record for the year 1906.*
16. *Deaths in the Navy and Marine Corps (relation by scale).*—During the year 1906.

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1906.

Average strength of the Navy and Marine Corps[a]	42,529
Average strength shown by reports of Medical Department[b]	41,690
Average strength of the force afloat	30,846
Admissions for disease, ashore and afloat	27,452
Ratio per 1,000 of strength	658.47
Ratio per 1,000 for previous year	594.82
Ratio per 1,000 for ten years (1896–1905)	649.65
Admissions for injuries, ashore and afloat	5,065
Ratio per 1,000 of strength	121.49
Ratio per 1,000 for previous year	120.04
Ratio per 1,000 for ten years (1896–1905)	138.30
Total admissions to sick list during the year	32,517
Ratio per 1,000 of strength	787.23
Ratio per 1,000 for previous year	714.81
Ratio per 1,000 for ten years (1896–1905)	788.18
Daily average of patients	1,420.44
Ratio per 1,000 of strength	34.06
Ratio per 1,000 for previous year	31.55
Ratio per 1,000 for ten years (1896–1905)	32.55

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[a] Used in computing ratios of deaths and discharges from the service for disability.

[b] Used in computing all ratios except those of deaths and discharges from the service for disability.

Total number of sick days	518, 461
Average for each man of Navy and Marine Corps	12.43
Average for previous year	11.51
Average for ten years (1896–1905)	11.72
Average days for each case treated	15.94
Average days for previous year	16.11
Average for ten years (1896–1905)	14.62
Discharges from service for disease	908
Ratio per 1,000 of strength	21.35
Ratio per 1,000 for previous year	24.76
Ratio per 1,000 for ten years (1896–1905)	29.61
Discharges from service for injury	209
Ratio per 1,000 of strength	4.91
Ratio per 1,000 for previous year	4.38
Ratio per 1,000 for ten years (1896–1905)	4.34
Total discharges for disability	1, 117
Ratio per 1,000 of strength	26.26
Ratio per 1,000 for previous year	29.07
Ratio per 1,000 for ten years (1896–1905)	29.70
Deaths from disease	144
Ratio per 1,000 of strength	3.38
Ratio per 1,000 for previous year	3.12
Ratio per 1,000 for ten years (1896–1905)	4.38
Deaths from injury (including poisons)	97
Ratio per 1,000 of strength	2.28
Ratio per 1,000 for previous year	3.36
Ratio per 1,000 for ten years (1896–1905)	2.24
Total deaths from all causes	241
Ratio per 1,000 of strength	5.66
Ratio per 1,000 for previous year	6.48
Ratio per 1,000 for ten years (1896–1905)	6.63

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1906.

2. NORTH ATLANTIC STATION.

Name of ship.	Period in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Alabama	Year	612	255	64	319	521.24	2,073	5.67	9.26	51	2	0
Alliance	....do	98	111	33	144	1,469.38	801	2.19	2.23	10	0	0
Amphitrite	....do	140	29	14	43	307.14	495	1.35	9.64	6	0	3
Arkansas	258 days	142	109	32	141	992.95	1,184	4.68	32.95	7	0	0
Barge 122	Year	13	12	2	14	1,076.92	52	.14	10.77	1	0	0
Brooklyn	216 days	267	200	35	235	880.15	1,853	8.57	32.09	27	0	1
Celtic	Year	134	109	40	149	1,111.91	515	1.41	10.52	33	0	1
Charleston	....do	735	864	187	1,051	1,429.93	5,397	14.78	20.11	66	0	5
Cleveland	....do	256	107	34	141	550.77	1,484	4.06	15.46	32	0	0
Colorado	....do	755	410	94	504	667.54	3,342	9.15	12.12	55	2	1
Columbia	....do	422	672	88	760	1,800.90	4,603	12.60	29.85	204	4	2
Connecticut	92 days	142	188	18	206	1,450.70	639	6.94	48.87	30	0	0
Denver	Year	311	147	18	165	530.54	1,332	3.65	11.73	43	2	0
Des Moines	....do	276	117	22	139	503.62	978	2.68	9.71	29	0	0
Dixie	212 days	204	51	13	64	313.72	671	3.16	15.49	20	0	1
Dolphin	Year	137	110	22	132	963.50	364	.99	7.22	23	0	0
Don Juan de Austria	....do	143	119	28	147	1,027.97	1,201	3.29	23.00	12	0	0
Dubuque	....do	155	45	15	60	387.09	452	1.23	7.93	21	0	2
Eagle	....do	63	37	12	49	777.77	168	.46	7.30	4	0	1
Fish Hawk	....do	41	13	1	14	341.46	82	.22	5.37	3	0	0
Florida	255 days	137	119	16	135	985.40	698	2.73	19.92	17	0	1
Georgia	99 days	98	113	11	124	1,265.30	656	6.61	67.45	12	1	0
Glacier	Year	181	128	27	155	856.35	699	1.91	10.55	4	0	0
Illinois	....do	628	193	51	244	388.88	1,606	4.40	7.00	56	0	1
Indiana	358 days	556	499	125	624	1,122.30	3,110	8.74	15.71	98	0	1
Iowa	Year	592	388	118	506	854.73	3,122	8.55	14.44	42	0	1
Kearsarge	....do	608	164	49	213	350.32	1,208	3.29	5.41	37	0	0
Kentucky	....do	658	239	96	335	509.11	2,468	6.76	10.27	35	1	0

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, etc.—Continued.

2. NORTH ATLANTIC STATION—Continued.

Name of ship.	Period in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Louisiana	212 days	466	302	95	397	850.64	2,321	10.94	23.47	35	0	0
Maine	Year	766	332	44	376	490.87	2,406	6.59	8.60	60	0	5
Marietta	242 days	101	69	13	82	811.88	577	2.38	23.56	6	0	0
Maryland	Year	794	473	103	576	725.42	5,313	14.55	18.32	19	0	3
Massachusetts	7 days	11	12	3	15	1,363.63	38	5.42	492.72	9	0	0
Mayflower	Year	169	52	23	75	443.78	456	1.26	7.45	9	0	0
Minneapolis	320 days	361	231	50	281	778.39	1,080	3.37	9.33	49	0	0
Missouri	Year	715	368	116	484	676.92	3,519	9.64	13.48	70	0	2
Monongahela	do	140	52	9	61	432.61	703	1.92	14.43	6	0	0
Nashville	204 days	105	94	13	107	1,019.04	676	3.32	31.62	18	0	0
Nevada	295 days	139	114	11	125	899.28	715	2.42	17.41	7	0	0
Newark	192 days	160	82	18	100	625.00	559	1.91	11.93	16	0	0
New Jersey	234 days	417	188	57	245	585.13	1,067	4.56	10.93	58	0	0
Newport	320 days	127	69	19	88	692.91	608	1.89	14.88	12	0	0
Olympia	90 days	96	39	9	48	500.00	418	4.64	49.27	5	0	0
Paducah	Year	154	117	15	132	857.14	1,138	3.10	20.13	17	0	0
Pennsylvania	do	779	482	108	590	757.38	4,450	12.11	15.54	97	3	2
Peoria	do	35	14	0	14	400.00	10	.027	.076	10	0	0
Prairie	97 days	56	22	4	26	464.28	112	1.15	20.53	6	0	0
Puritan	204 days	21	20	8	28	1,333.33	90	.44	20.95	7	0	0
Rhode Island	315 days	583	823	110	932	1,598.62	5,141	16.00	27.44	158	6	1
St Louis	136 days	71	40	8	48	676.05	322	2.36	33.24	6	0	0
Scorpion	Year	90	135	23	158	1,755.55	594	1.62	18.00	18	0	0
Severn	96 days	62	56	13	69	1,112.90	248	2.58	41.61	10	0	0
Southery	Year	476	66	10	76	159.66	623	1.70	3.57	38	0	0
Tacoma	do	311	141	17	158	508.03	1,124	3.08	9.90	15	0	0
Tennessee	168 days	257	173	39	212	824.90	1,307	7.77	30.23	39	4	0
Texas	188 days	213	130	36	166	779.34	796	4.23	19.85	29	2	1
Torpedo flotilla, second division	Year	166	120	21	141	849.39	943	2.58	15.54	73	0	2
Torpedo flotilla, third division	44 days	21	12	1	13	619.04	51	1.16	55.23	2	0	0
Virginia	239 days	458	164	41	205	425.76	1,219	5.11	11.15	25	2	1
Washington	147 days	234	76	33	109	465.81	759	5.16	22.05	14	0	3
Wasp	39 days	3	3	1	4	1,333.33	4	.10	33.33	1	0	0
West Virginia	Year	815	714	111	825	1,012.27	6,184	16.93	20.77	57	1	2
Wolverine	do	103	68	21	89	864.07	704	1.92	18.64	2	2	0
Yankee	268 days	339	252	60	312	920.35	2,516	9.38	27.66	27	0	0
Yankton	Year	87	46	8	54	620.68	445	1.21	13.91	8	0	2

3. PACIFIC STATION.

Name of ship.	Period in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Adams	Year	216	150	14	164	759.21	1,199	3.28	15.18	2	1	0
Albatross	do	73	29	10	39	534.24	187	.51	6.98	5	0	1
Boston	do	284	125	28	153	538.73	1,327	3.63	12.78	33	0	0
Buffalo	44 days	14	9	2	11	785.71	67	1.52	108.57	3	0	0
Chicago	Year	467	106	27	133	284.79	717	1.96	4.19	31	0	1
Lawton	320 days	230	216	30	246	1,069.56	3,995	12.48	54.26	104	0	3
Marblehead	278 days	198	100	28	128	646.46	835	3.05	15.40	11	2	0
Milwaukee	22 days	20	9	4	13	650.00	47	2.13	106.05	7	0	0
Paul Jones	Year	73	15	8	23	315.06	53	.14	1.91	3	0	0
Preble	13 days	2	3	0	3	1,500.00	17	1.30	650.00	0	0	0
Princeton	Year	135	81	21	102	755.55	570	1.57	11.63	10	0	0
Supply	do	144	122	27	149	1,034.72	912	2.49	17.28	34	3	0
Yorktown	92 days	41	21	10	31	756.09	111	1.20	29.25	2	0	0

4. ASIATIC STATION.

Name of ship.	Period in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Baltimore	Year	381	188	40	228	598.45	2,321	5.35	14.14	49	0	0
Chattanooga	do	339	265	43	308	908.55	1,659	4.54	13.39	15	0	1
Cincinnati	do	362	217	76	293	809.39	2,515	6.89	19.03	44	0	3
Concord	do	181	121	12	133	734.80	794	2.06	11.38	16	0	0
Elcano	do	96	162	15	177	1,843.75	1,256	3.44	35.93	22	0	0
Frolic	90 days	21	13	3	16	761.90	68	.70	33.33	3	0	0
Galveston	Year	338	251	36	287	849.11	1,744	4.77	14.11	8	3	1
Helena	169 days	103	67	20	87	844.66	690	4.08	39.61	10	0	0
Mohican	Year	170	150	28	178	1,047.05	1,291	3.53	20.64	8	0	2

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, etc.—Continued.

4. ASIATIC STATION—Continued.

Name of ship.	Period in commission.	Average complements corrected for time.	Admission.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Monadnock	199 days	128	76	8	84	656.24	86	4.34	33.90	27	0	05
Ohio	Year	833	768	143	911	1,093.63	5,120	14.02	16.81	70	0	3
Oregon	117 days	187	67	25	92	491.97	630	5.38	2.87	20	0	0
Piscataqua	Year	44	33	3	36	818.81	230	.63	14.32	10	0	0
Rainbow	do	438	485	39	524	1,196.34	2,796	7.66	17.48	58	0	2
Raleigh	do	321	202	43	245	307.87	1,585	4.34	13.52	31	0	3
Torpedo Flotilla, First Division.	do	488	125	25	150	307.37	1,450	3.97	8.13	16	0	1
Villalobos	do	58	53	9	62	1,068.96	676	1.85	31.89	3	0	0
Wilmington	274 days	171	261	42	303	1,771.93	2,188	7.80	45.61	26	0	0
Wisconsin	319 days	582	342	68	410	704.46	3,361	10.53	18.09	33	0	3
Wompatuck	Year	38	9	2	11	289.47	40	.11	2.89	6	0	0

5. RECEIVING SHIPS.

Name of ship.	Period in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Wabash, Boston	Year	390	166	20	186	476.92	635	1.74	4.46	141	2	1
Hancock, New York	do	1,086	478	53	531	488.95	1,340	3.67	3.37	360	14	3
Lancaster, League Island.	do	527	102	44	346	656.54	709	1.94	3.68	208	21	0
Franklin, Norfolk	do	2,249	1,612	225	1,837	816.80	11,119	30.46	13.54	516	58	3
Independence, Mare Island.	do	778	151	39	190	244.21	475	1.30	1.67	94	36	1
Philadelphia, Puget Sound.	do	235	53	16	69	298.61	351	.96	4.08	19	1	1

6. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Name of ship.	Period in commission.	Average complements corrected for time.	Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
Navy-yards:												
Boston	Year	543	340	29	369	679.18	1,675	4.58	8.43	125	6	2
Cavite	do	615	567	70	637	1,035.77	2,873	7.87	12.79	292	1	2
League Island	do	286	323	52	375	1,311.18	1,199	3.28	11.46	128	15	1
Mare Island	do	457	406	102	508	1,111.59	2,801	7.67	16.78	182	16	1
New York	do	440	473	42	515	1,170.45	2,709	7.42	16.86	124	12	1
Norfolk	do	404	312	46	358	886.13	1,300	3.56	8.81	126	14	0
Pensacola	do	156	106	22	128	820.51	594	1.62	10.38	46	5	1
Portsmouth	do	145	116	10	126	868.96	535	1.46	10.07	56	0	1
Puget Sound	do	124	79	23	102	822.58	121	.33	2.66	77	0	0
Washington	do	299	236	39	275	919.73	818	2.24	7.49	104	3	0
Marine barracks and camps:												
Cuba	72 days	272	244	69	313	1,150.73	2,030	28.19	10.36	10	0	2
Culebra	Year	80	264	20	284	3,550.00	1,441	3.94	48.25	27	0	0
Olongapo	do	713	1,002	208	1,210	1,697.05	8,978	24.57	34.46	98	0	5
Panama	do	257	1,017	71	1,088	4,233.43	6,715	18.39	71.55	23	0	1
Polloc	do	35	19	3	22	628.57	145	.39	11.14	0	0	0
Washington	do	306	512	48	560	1,830.06	2,189	5.99	19.57	167	0	1
Naval stations:												
Academy	do	1,287	827	128	955	742.03	5,655	15.42	11.98	17	3	4
Charleston	do	84	84	8	92	1,830.06	685	1.87	22.73	1	1	2
Guam	do	139	158	30	188	1,352.51	2,056	5.63	40.50	33	8	1
Hawaii	do	145	94	19	113	779.31	820	2.24	13.38	14	0	4
Indianhead	do	7	7	2	9	1,285.71	35	.09	12.87	1	0	0
Iona Island	do	15	7	2	9	600.00	36	.09	5.00	0	0	0
Key West	do	102	35	11	46	450.98	867	2.37	23.23	19	1	1
Midway Islands	do	22	13	12	25	1,136.31	67	1.83	83.18	0	0	1
New Orleans	do	64	42	9	51	796.87	490	1.34	20.93	1	1	0
Newport	do	1,906	1,759	208	1,967	1,032.00	10,508	28.76	15.09	938	86	4
Port Royal	do	48	33	3	36	750.00	199	.54	11.25	12	0	0
San Francisco	do	586	870	96	966	1,648.46	6,358	17.39	29.67	28	10	4
Special duty:												
New York	do	......	3	0	3	....	3	.008	....	0	0	0
Peking	do	123	134	16	150	....	1,977	5.41	....	1	1	0
Philadelphia	do	......	13	5	18	....	247	.67	....	2	0	0
San Francisco	do	......	3	2	5	....	36	.09	....	1	0	0
Washington	do	......	52	5	57	....	373	1.02	....	5	0	0

General aggregate, 1906.

7. FORCE AFLOAT.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	3	458	16	282	182	....	....	....	2	....	6	2,490
Class II.												
General infectious diseases (non-venereal)	31	3,094	318	2,362	1,007	10	1	....	....	12	51	19,380
Class III.												
Constitutional disorders of nutrition	1	58	10	27	35	1	....	....	....	....	1	544
Class IV.												
Diseases of the nervous system	12	1,263	127	1,102	260	39	2	1	....	4	14	7,176
Class V.												
Diseases of the visual apparatus	10	295	37	230	86	19	1	....	1	....	5	3,207
Class VI.												
Diseases of the auditory apparatus	....	218	29	189	49	8	....	....	....	....	1	1,243
Class VII.												
Diseases of the olfactory apparatus	....	106	1	96	8	....	....	....	....	....	3	360
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—												
Diseases of the digestive apparatus	31	3,173	139	2,817	474	2	2	....	....	6	42	14,163
Subsidiary class 2—												
Diseases of the circulatory apparatus	7	314	56	206	138	23	....	....	1	7	2	3,641
Subsidiary class 3—												
Diseases of the respiratory apparatus	13	882	43	795	122	4	1	....	....	....	16	5,172
Class IX.												
Diseases of the motory apparatus	8	556	44	486	112	4	....	....	1	....	5	4,340
Class X.												
Diseases of the cutaneous apparatus	28	1,701	87	1,664	141	....	....	....	....	....	11	12,715
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	104	5,690	518	5,209	977	28	1	....	2	1	94	42,738
Class XII.												
Cysts and new growths	....	48	7	25	27	1	....	....	....	....	2	209
Class XIII.												
Injuries	64	3,241	150	2,918	395	26	....	....	2	51	63	26,909
Class XIV.												
Extraneous bodies	....	22	3	17	8	....	....	....	....	....	....	74
Class XV.												
Poisons	3	374	31	337	48	8	....	....	....	6	9	2,002
Class XVI.												
Feigned diseases	....	5	......	4	.....	....	....	....	....	....	1	12
Total	315	21,508	1,616	18,766	4,069	173	8	1	9	87	326	146,375

Detailed statement, 1906.

8. FORCE AFLOAT.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		6		6								13
Oxyuris vermicularis		4		4								8
Pediculus		3		2	1							31
Pityriasis		3		3								21
Scabies	3	385	14	223	172				2		5	2,061
Tænia		13	1	13	1							57
Tinea favosa		1		1								4
Tinea trichophytina		22		19	2						1	159
Trichinosis		7		7								39
Other diseases of this class		9	1	4	6							97
CLASS II:												
General infectious diseases (non-venereal)—												
Bubonic plague		1								1		1
Cachexia malarialis		21	3	13	10	1						179
Catarrhus epidemicus	3	756	20	727	32						20	2,995
Cholera morbus		6		6								14
Denguis	2	153	3	154	4							901
Diphtheria		15		10	5							180
Dysenteria acuta		15	2	14	2						1	130
Dysenteria chronica	1	9	3	3	10							143
Erysipelas		10		5	4						1	64
Febris cerebro-spinalis		5	1	2	4							24
Febris enterica	3	156	17	29	143					2	2	1,650
Febris intermittens	2	599	142	655	84						4	3,554
Febris pneumonica	3	118	1	20	99					3		575
Febris recurrens		3		3								13
Febris remittens	3	160	23	166	18						2	1,123
Morbilli		123	1	9	115							138
Neuritis endemica		2			2							3
Parotitis epidemica	1	365	3	191	173						5	2,145
Pyæmia	1	1	2	1	2					1		90
Rheumatismus articularis acutus	6	234	31	187	77						7	2,332
Rheumatismus articularis chronicus	1	79	29	60	45	3					1	1,155
Rubella		8		1	7							6
Scarlatina		14			9					2	3	15
Septicæmia		1		1								41
Tuberculosis miliaris acuta		2	4		6							133
Tuberculosis pneumonica acuta		25	1	1	23	1				1		242
Tuberculosis pneumonica chronica	2	104	30	11	115	5	1			1	3	902
Tuberculosis of other parts		3	1		4							63
Vaccina	3	75		78								368
Varicella		15		10	4						1	85
Variola		5		2	2					1		61
Other diseases of this class		11	1	3	8						1	55
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia		31	7	17	20						1	299
Debilitas senilis		7	1	2	5	1						118
Diabetes insipidus			1		1							8
Diabetes mellitus	1	4	1		6							19
Hæmophilia		1			1							0
Lithæmia		7		6	1							43
Other diseases of this class		3		2	1							57
CLASS IV:												
Diseases of the nervous system—												
Apoplexia		5			2					1	2	34
Cephalalgia		37	1	33	5							107
Dementia		24	9	3	28	2						292
Epilepsia	1	63	21	36	28	17	1				3	683
Febris continua simplex	2	270	6	257	17						4	1,536
Febris ephemera	3	358	9	364	3						3	1,290
Febris thermica		20		19	1							81
Hemiplegia		5	1	2	4							22

Detailed statement, 1906—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for Insane.				
Class IV—Continued.												
Diseases of the nervous system—Continued.												
Insomnia		4		8	1							9
Mania		6	3		9							49
Melancholia	1	87	14	6	42	3		1				376
Meningitis		4	1	1	4							15
Monoplegia		2			2							17
Nausea marina		46	7	50	2	1						134
Neuralgia		87	9	88	5	2					1	495
Neurasthenia		45	17	28	30	8	1					566
Neuritis		32	8	12	20	3						288
Neuritis multiplex		1		1								10
Neurosis hysteroidea		7		4	3							62
Paranoia	1	9	8	2	9	2						134
Paraplegia		1	2		3							8
Prostratio thermica	3	139	10	136	13	2				1		477
Sciatica		20	4	18	5	1						205
Sclerosis multiplex			1	1								38
Syncope		15		12	1					2		50
Torticollis spasmodica		5		4							1	11
Vertigo	1	24	2	16	9	2						158
Other diseases of this class		17	4	6	14	1						79
Class V:												
Diseases of the visual apparatus—												
Achromatopsia	1	18		4	3	11			1			415
Amaurosis		3	2	2	2						1	54
Amblyopia		4		1	3							25
Asthenopia		9	2	4	6	1						30
Astigmatismus	1	9	1	10	1							68
Blepharitis		1		1								2
Cataracta		1				1						24
Choroiditis		3		1	2							14
Conjunctivitis	2	117	10	111	16	1					1	805
Corneæ ulcus		8	1	8	1							82
Dacryocystitis		3		2	1							20
Glaucoma		3	1		4							112
Hordeolus		6		6								13
Hypermetropia		3	2	4	1							47
Iritis	1	31	4	21	12		1				2	369
Keratitis		15	8	15	6	1					1	236
Leucoma		2		2								10
Myopia	4	30	8	23	10	4						615
Neuritis optica		2			2							3
Pterygium		17	2	10	9							105
Retinitis	1	4		3	2							60
Sclerotitis		1		1								1
Trachoma		2			2							13
Other diseases of this class		3	1	1	3							84
Class VI:												
Diseases of the auditory apparatus—												
Myringitis		1		1								1
Otalgia		6		6								19
Otitis externa		57	2	58	1							273
Otitis media		143	25	118	44	5					1	901
Surditas		10	2	5	4	3						46
Other diseases of this class		1		1								8
Class VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1			1							0
Rhinitis acuta		95	1	93							3	342
Rhinitis chronica		8		3	5							11
Other diseases of this class		2			2							7
Class VIII—Diseases of the Nutritive Apparatus:												
Subsidiary Class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		3		3								15
Ani prolapsio		4		2	2							15
Appendicitis	2	156	29	85	95	1	1			3	2	1,390
Catarrhus gastricus acutus	1	150	6	142	13					1	1	668

Detailed statement, 1906—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary Class 1—Diseases of the digestive apparatus—Cont'd.												
Catarrhus gastricus chronicus		36	7	21	21		1					415
Catarrhus intestinalis acutus	1	107	5	108	4						1	451
Catarrhus intestinalis chronicus		8	1	6	3							83
Cholelithiasis	1	8	1	4	6							33
Colica		199	4	200	3							509
Constipatio	2	99	4	104	1							318
Dentis caries		10		7	3							20
Diarrhœa simplex	1	269	2	267	5							767
Dyspepsia nervosa		9		6	2	1						61
Fistula in ano		31	4	13	22							384
Gastralgia		14	1	12	3							49
Glossitis		2		2								9
Hæmatemesis		2		1	1							6
Hæmorrhois	3	156	14	92	76						5	768
Hepatis congestio	1	40	1	39	3							136
Hepatitis suppurativa		2			2							7
Hypertrophia tonsillaris		5	1	2	4							40
Icterus	2	103	6	90	21							955
Obstructio intestinalis		5	1	4	1					1		20
Odontalgia		4		4								8
Parulis		3		3								12
Periodontitis		1		1								3
Periproctitis		1		1								4
Peritonitis		1								1		1
Pharyngitis	1	77	1	77	2							245
Stomatitis	1	5		2	4							37
Tonsillitis	15	1,636	43	1,497	164						33	6,876
Typhlitis		2		2								7
Ulcus gastricum		5	1	2	4							124
Other diseases of this class		20	7	18	9							227
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		2								2		2
Angina pectoris		4	1	3	2							30
Arteriosclerosis		1			1							1
Cordis dilatatio	1			1								1
Cordis hypertrophia		3	1	3	1							35
Cordis palpitatio	1	57	15	42	23	7					1	502
Cordis valvularum morbus	1	50	19	19	84	15				2		615
Embolismus		1								1		1
Endocarditis		1			1							1
Myocarditis		3		1	1					1		85
Pericarditis		3		1	1					1		22
Phlebitis	1	10		6	4				1			138
Thrombosis		1			1							3
Varix	1	31	5	4	32	1						260
B.—Lymphatics—												
Bronchocele		2		2								22
Lymphadenitis	2	108	14	89	34						1	1,565
Lymphangitis		26	1	27								252
Splenypertrophia		1		1								4
Other diseases of this class		10		7	3							102
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma	1	18	12	22	6	1					2	167
Bronchopneumonitis		16		11	5							201
Bronchitis acuta	8	416	12	408	21	1	1				5	2,081
Bronchitis chronica		53	7	26	31	1					2	513
Catarrhus bronchialis	1	210	4	196	14						5	797
Emphysema pulmonalis		2			2							1
Hæmoptysis	1	16	1	11	7							81
Laryngitis acuta		41	2	40	3							200
Laryngitis chronica		2		2								8
Pleuritis acuta	1	98	5	71	26						2	969
Pleuritis chronica	1	9		6	3	1						88
Pleuritis purulenta		2			2							60
Pneumothorax		1			1							2
Other diseases of this class		3		2	1							4

Detailed statement, 1906—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total nnmber of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		5	1	1	4	1						188
Arthritis		27	9	23	12						1	430
Arthritis deformans		1			1							0
Bursitis		22	1	20	3							291
Caries		6		2	4							96
Contractura		3		1	2							4
Myalgia acuta	4	336	10	320	26	1			1		2	1,780
Myalgia chronica		37	9	22	24							429
Necrosis		3			3							22
Ostitis		8		1	6	1						65
Osteomyelitis		1			1							0
Periostitis	1	23	3	18	9							212
Synovitis	3	64	6	59	12						2	663
Thecitis		10	3	10	2	1						99
Other diseases of this class		10	2	9	3							61
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	15	722	20	698	56						3	5,206
Acne		4		3							1	89
Carbunculus	2	33	2	32	4						1	174
Cellulitis	2	166	7	166	9							1,408
Clavus		12	2	12	2							79
Cutis fissuræ	1	6	1	8								28
Ecthyma		3		3								36
Eczema		50	4	40	14							475
Erythema		32		31	1							129
Furunculus	2	294	24	316	2						2	1,558
Herpes simplex		4		3	1							14
Herpes zoster		19		19								182
Impetigo		7		7								58
Lichen		5		5								33
Onychia		5	1	6								112
Paronychia		38		37							1	301
Pemphigus		4	1	4	1							46
Pityriasis		2		2								8
Prurigo		9	4	8	5							23
Psoriasis		2		2								5
Ulcus	4	137	14	126	26						3	1,813
Unguis involutus	1	82	3	74	12							566
Urticaria	1	27		27	1							92
Verruca		11	2	10	3							115
Other diseases of this class		27	2	25	4							215
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	32	671	64	579	161						27	11,188
Arthritis gonorrhoica	1	116	31	78	60	6					4	1,772
Balanitis	1	18	1	20								125
Calculus	1				1							1
Chancroid	5	630	17	601	37						14	3,083
Cystitis	1	62	4	47	19						1	720
Enuresis	1	19	5	9	12	4						39
Epididymitis	12	331	40	330	40						13	4,289
Fistula urinalis		3			3							2
Gonorrhœa	13	2,112	109	2,135	89				2		8	6,722
Hæmaturia		8		6	2							78
Hydrocele		19	1	5	14	1						129
Nephritis acuta		10	2	6	5						1	113
Nephritis chronica	1	12	2	3	10	1					1	216
Nephrolithiasis		11	2	12			1					61
Ophthalmia gonorrhoica		16	4	10	9	1						73
Orchitis	8	332	36	333	35						8	3,937
Paraphimosis	2	15		14	3							145
Phimosis	2	208	6	183	29						4	2,028
Prostatitis		18	2	11	8						1	156
Pyelitis		6	1	2	5							80
Spermatorrhœa		1		1								2
Syphilis consecutiva	20	758	173	630	299	12					10	6,161

Detailed statement, 1906—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XI—Continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Syphilis primitiva	2	112	3	99	16	1					1	625
Uræmia		1								1		1
Urethræ strictura		30	2	17	15							91
Urethritis simplex		1		1								13
Urina suppressa		3		2	1							15
Urinæ retentio		7		6	1							15
Varicocele	1	119	7	35	90	1					1	535
Verruca acuminata	1	22	2	19	6							151
Other diseases of this class		19	4	15	7	1						222
CLASS XII:												
Cysts and new growths—												
Angeioma		2		1	1							8
Carcinoma		2			2							2
Chondroma		5		1	4							11
Cystis		28	4	18	11	1					2	150
Epithelioma		4	1	2	3							6
Fibroma		2		2								3
Lipoma		2		1	1							19
Osteoma		1			1							3
Other diseases of this class		2	2		4							7
CLASS XIII:												
Injuries—												
Abrasio		57	2	58							1	375
Ambustio ex calore	4	197	8	183	13					10	3	1,659
Asphyxia		8		6						2		20
Asphixia ex submersione		21		1						20		20
Concussio		24	1	17	7					1		108
Contusio	11	783	12	719	24				1		12	4,192
Deformitas	1	62	9	25	35	11					1	655
Fames		8		3	2	3						151
Fractura	8	292	24	227	82					5	10	4,825
Fulminis ictus		3	1		4							5
Hernia		152	29	46	125	7					3	710
Ictus electricus		2		2								3
Luxatio	1	58	6	56	5	1					3	630
Membranæ tympani ruptio		13	1	11	3							110
Membri clades		8	2	4	3					2	1	253
Musculi ruptio		2		1	1							3
Visceris ruptio		3		3								20
Sole excoctus		13		13								39
Stremma	13	607	24	600	34						10	4,446
Virium defectio		12	2	9	3	2						97
Vulnus contusum	2	223	1	215	8						3	1,700
Vulnus incisum	4	192	5	188	7				1	1	4	1,524
Vulnus laceratum	15	401	9	399	16					1	9	4,093
Vulnus punctum	2	85	9	87	9							678
Vulnus sclopeticum	1	37	3	18	11	1				9	2	417
Other diseases of this class	2	28	2	27	3	1					1	181
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		22	3	17	8							74
CLASS XV:												
Poisons—												
Alcoholismus	2	193	12	171	26	2				5	3	602
Dermatitis venenata		30	3	30	2						1	208
Venenum irritans		17		17								26
Venenum neuroticum		28	5	28	3	1				1		234
Vulnus venenatum	1	90	5	82	10						4	821
Other diseases of this class		16	6	9	7	5					1	111
CLASS XVI:												
Feigned diseases—												
Hypochondriasis		1		1								3
Malingering		1									1	5
Stremma		3		3								4
Total	315	21,508	1,616	18,766	4,069	173	8	1	9	87	326	146,375

General aggregate, 1906.

9. NAVY YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Government Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I.												
Parasites and parasitic diseases....	4	262	9	142	130	....	....	....	....	....	3	1,159
Class II.												
General infectious diseases (non-venereal).....	38	2,697	962	2,696	931	3	5	....	1	7	54	17,507
Class III.												
Constitutional disorders of nutrition.....	....	28	5	14	18	....	1	....	....	....	....	144
Class IV.												
Diseases of the nervous system	13	610	54	517	118	25	3	5	....	2	7	3,532
Class V.												
Diseases of the visual apparatus...	....	242	30	168	67	28	2	....	....	....	7	2,008
Class VI.												
Diseases of the auditory apparatus.	2	153	14	113	42	13	1	....	....	....	....	1,197
Class VII.												
Diseases of the olfactory apparatus.	1	29	1	26	4	1	....	....	....	....	....	173
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1— Diseases of the digestive apparatus.....	14	1,693	86	1,488	274	13	4	....	....	5	9	7,775
Subsidiary class 2— Diseases of the circulatory apparatus.....	2	181	16	85	82	30	....	....	....	1	1	1,793
Subsidiary class 3— Diseases of the respiratory apparatus.....	14	609	32	511	131	2	....	....	1	....	10	3,046
Class IX.												
Diseases of the motory apparatus..	1	190	25	152	61	2	....	....	....	....	1	1,232
Class X.												
Diseases of the cutaneous apparatus.....	12	689	45	641	83	....	2	....	....	....	20	5,378
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus....	24	1,308	151	969	461	18	....	....	....	1	34	10,716
Class XII.												
Cysts and new growths.....	....	23	3	12	12	1	....	....	....	....	1	154
Class XIII.												
Injuries.....	15	1,161	63	931	218	47	4	....	1	19	19	9,626
Class XIV.												
Extraneous bodies.....	....	4	....	4	....	....	....	....	....	....	....	25
Class XV.												
Poisons	4	171	11	156	25	....	....	....	....	4	1	1,070
Class XVI.												
Feigned diseases.....	....	3	....	2	1	....	....	....	....	....	....	5
Total.....	144	10,053	1,507	8,627	2,658	183	22	5	3	39	167	66,585

Detailed statement, 1906.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To hospital for insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		3		3								11
Pediculus	1	17		18								56
Pulex penetrans		1	1	1							1	22
Scabies	2	183	8	71	122							693
Tænia		9		7	2							25
Tinea favosa		1			1							0
Tinea trichophytina		38		34	2						2	285
Trichinosis		3			3							0
Other diseases of this class	1	7		8								67
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		21	5	12	14							107
Catarrhus epidemicus	6	315	4	290	13						22	1,257
Cholera morbus		1		1								0
Denguis		236	10	215	29						2	1,297
Diphtheria		3		1	1		1					65
Dysenteria acuta		30	1	14	17							207
Dysenteria chronica		9	1	3	7							113
Erysipelas		6		4	2							82
Febris cerebro-spinalis	1	7		1	7							52
Febris enterica		44	3	12	29		2			1	3	826
Febris intermittens	8	851	848	1,527	162				1		17	7,603
Febris pneumonica	2	66		13	52					3		289
Febris remittens	8	178	43	185	41		1				2	1,605
Morbilli	1	227	1	36	193							550
Neuritis endemica		1			1							0
Parotitis epidemica		257	2	9	250							157
Pertussis		1		1								127
Rheumatismus articularis acutus	5	116	23	89	51	2					2	1,256
Rheumatismus articularis chronicus		43	12	34	20						1	422
Rubella		3		1	2							6
Scarlatina		3			3							0
Septicæmia		3								3		9
Tuberculosis pneumonica acuta		3		1	2							46
Tuberculosis pneumonica chronica	1	21	1	1	19	1	1				1	188
Tuberculosis *of other parts*		1									1	30
Vaccina	6	241	8	240	12						3	1,210
Varicella		8		5	3							40
Variola		1		1								59
Other diseases of this class		1			1							4
Class III:												
Constitutional disorders of nutrition—												
Anæmia		24	2	9	16		1					111
Hæmophilia		1	3	2	2							11
Pseudoleucocythæmia		1		1								5
Other diseases of this class		2		2								17
Class IV:												
Diseases of the nervous system—												
Apoplexia		3		1						2		25
Cephalalgia		30		28	2							80
Chorea		7	1	6	2							145
Dementia	1	12	2		12	1		1			1	48
Epilepsia		36	13	19	17	11					2	398
Febris continua simplex	6	198	10	196	17						1	1,004
Febris ephemera	1	185	1	134	8							446
Febris thermica		3		3								6
Hemicrania		3		3								10
Hemiplegia		1	1	1				1				28
Insomnia		2		2								16
Mania		5	2	1	6							4
Melancholia		14	3	2	9	2		3			1	68
Monoplegia		3			2	1						35
Neuralgia		46	3	46	2						1	279
Neurasthenia		31	6	12	19	3	2				1	281
Neuritis	1	16	1	11	7							137

Detailed statement, 1906—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalid.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Neurosis hysteroidea		8		1	1		1					6
Paralysis agitans		2		1	1							13
Paranoia		9		2	5	2						64
Prostratio thermica		4		4								12
Sciatica		9	1	5	4	1						114
Sclerosis lateralis amyotrophica		2	1	3								36
Sclerosis multiplex	1	1	1		2	1						63
Sclerosis spinalis posterior		2	1	1	2							2
Syncope		10		10								31
Torticollis spasmodica		5		5								14
Vertigo	1	12	5	15	2	1						116
Other diseases of this class	2	6	2	5	3	2						101
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		7		5	2							6
Amaurosis		5	1	5	1							15
Amblyopia		7	2	6	2	1						115
Asthenopia		29	1	8	17	5						103
Astigmatismus		5	3	2	2	4						64
Blepharitis		2		1	1							14
Cataracta		1			1							0
Conjunctivitis		73	4	70	6						1	346
Corneæ ulcus		4	1	3	2							62
Dacryocystitis		1	1		2							6
Hordeolus		8		8								18
Hypermetropia		13	1	9	2	2	1					125
Iritis		7	1	5	3							61
Keratitis		3		1		1	1					22
Leucoma		2	2	2	1	1						8
Myopia		50	7	31	10	11					5	681
Neuritis optica		4	3	3	3	1						137
Panophthalmitis		3			2						1	12
Pterygium		8	2	3	7							50
Retinitis		3	1	1	2	1						81
Synechia		1		1								8
Trachoma		4		3		1						67
Other diseases of this class		2		1	1							2
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		1		1								4
Otalgia		7	1	8								43
Otitis externa		21		20	1							93
Otitis media	2	103	10	78	34	2	1					705
Surditas		20	3	6	6	11						351
Other diseases of this class		1			1							1
CLASS VII:												
Diseases of the olfactory apparatus—												
Catarrhus æstivus		1		1								3
Rhinitis acuta		22		21	1							50
Rhinitis chronica		5	1	2	3	1						23
Other diseases of this class	1	1		2								97
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary Class 1—Diseases of the digestive apparatus—												
Adenitis salivosa		2		2								12
Ani prolapsio		1	1		2							3
Ani rhagades		1		1								3
Appendicitis		77	15	31	54	1	1			3	2	797
Catarrhus gastricus acutus		51	4	43	11						1	317
Catarrhus gastricus chronicus	1	21	4	14	11		1					111
Catarrhus intestinalis acutus		80	3	76	6						1	235
Catarrhus intestinalis chronicus	1	19	5	17	5	2	1					215
Cholelithiasis		6		1	5							5
Colica		119	3	115	7							357
Constipatio	1	40	4	42	2						1	117
Dentis caries		16	2	10	1	7						143

Detailed statement, 1906—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalid.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary Class 1—Diseases of the digestive apparatus—Cont'd.												
Diarrhœa simplex	1	298	13	299	12						1	1,119
Dyspepsia nervosa		4	1	4	1							21
Fistula in ano		9	2	5	6							71
Gastralgia		3		1	2							18
Hæmatemesis		2		1	1							3
Hæmorrhois		72		38	33	1						434
Hepatis congestio		12	2	14								104
Hepatitis acuta		1									1	7
Hepatitis chronica		4		3	1							3
Hepatitis suppurativa		1								1		3
Hypertrophia tonsillaris		4		2	2							3
Icterus		21		13	8							107
Obstructio intestinalis		1			1							13
Odontalgia		11		10							1	32
Periodontitis		1		1								4
Peritonitis		2		1						1		10
Pharyngitis		71	1	67	4		1					261
Stomatitis		5		5								35
Tonsillitis	10	722	21	662	90						1	3,054
Typhlitis		1		1								10
Ulcus gastricum		1	2	1	2							24
Other diseases of this class		14	3	8	7	2						124
Subsidiary Class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Cordis dilatatio		3			3							10
Cordis hypertrophia		2	1		2	1						35
Cordis palpitatio		32		19	13							173
Cordis valvularum morbus	1	31	4	8	20	7				1		205
Embolismus		39	4	16	8	19						764
Endocarditis		1									1	7
Pericarditis		1			1							0
Phlebitis		1			1							0
Thrombosis		1			1							0
Varix		23	5	9	18	1						280
B—Lymphatics—												
Bronchocele		6		1	3	2						22
Lymphadenitis	1	27	2	20	10							251
Lymphangitis		10		9	1							38
Splenypertrophia		1			1							1
Other diseases of this class		3		3								7
Subsidiary Class 3—Diseases of the respiratory apparatus—												
Asthma	1	14	6	12	8	1						109
Bronchopneumonitis	1	9		1	9							6
Bronchitis acuta	6	314	8	263	58						7	1,454
Bronchitis chronica		32	6	20	17				1			300
Catarrhus bronchialis	6	173	8	174	11						2	774
Hæmoptysis		2		1	1							2
Laryngitis acuta		18		16	1						1	74
Laryngitis chronica		1			1							18
Œdema pulmonalis		2	1	2	1							18
Pleuritis acuta		37	2	20	19							218
Pleuritis chronica		7	1	2	5	1						73
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		4		8	1							98
Arthritis		14	3	10	7							124
Bursitis		9	1	5	5							57
Caries		1			1							0
Myalgia acuta		98	7	93	11						1	550
Myalgia chronica		12	3	8	7							115
Necrosis		1	2	1	2							27
Periostitis		4	1	4	1							87
Synovitis	1	28	7	19	16	1						130
Thecitis		7		2	4	1						33
Other diseases of this class		12	1	7	6							11

Detailed statement, 1906—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	3	179	10	150	35		1				6	1,201
Acne		2		2								10
Carbunculus		9	1	9	1							108
Cellulitis	2	64	1	52	12						3	527
Clavus		16	2	14	3						1	124
Cutis fissuræ		5		5								21
Eczema	1	33	3	30	5						2	399
Erythema	1	8	1	7	3							35
Furunculus	1	165	11	175	2							876
Herpes simplex		8		8								38
Herpes zoster		8		6	2							43
Impetigo		14	1	14	1							170
Lichen		7		5	2							37
Onychia		1		1								69
Paronychia		6		5	1							22
Pemphigus		2		2								15
Pityriasis		1		1								3
Psoriasis		2	2	2	2							95
Ulcus	2	58	6	54	6		1				5	685
Unguis involutus	2	55	5	57	3						2	577
Urticaria		15		13	2							48
Verruca		4		3	1							37
Other diseases of this class		27	2	26	2						1	238
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	2	106	7	50	62						3	1,011
Arthritis gonorrhoica	1	37	5	14	26	2					1	406
Balanitis		15	1	15	1							62
Calculus	1	1		2								79
Chancroid	3	99	4	72	81						3	780
Cystitis		27	4	14	14						3	136
Enuresis		18	1	4	10	4					1	226
Epididymitis	1	76	12	57	29						3	754
Fistula urinalis		2			2							2
Gonorrhœa	4	473	49	470	49						7	3,037
Hæmaturia	1	3		2	2							31
Hydrocele		8		2	4						2	33
Nephritis acuta	1	8		3	5	1						188
Nephritis chronica		12	1	5	7					1		95
Nephrolithiasis		7	4	6	4						1	61
Ophthalmia gonorrhoica		6		2	4							69
Orchitis	3	55	3	89	20						2	579
Paraphimosis		9	1	6	3						1	73
Perinephritis		1			1							0
Phimosis		59		46	13							502
Prostatitis		8	1	3	6							104
Pyelitis		2		1	1							1
Syphilis consecutiva	3	146	42	103	76	5					7	1,592
Syphilis primitiva	1	23	4	15	12	1						136
Urethræ strictura		11		2	9							31
Urinæ retentio		1		1								3
Varicocele	3	84	12	25	69	5						647
Verruca acuminata		3		3								15
Other diseases of this class		8		7	1							63
CLASS XII:												
Cysts and new growths—												
Adenoma		1			1							0
Angeioma		2			1						1	36
Chondroma		1			1							0
Cystis		9	1	5	5							48
Epithelioma		1	1	2								2
Fibroma		4		3	1							24
Osteoma		2	1	1	1	1						37
Sarcoma		1			1							0
Other diseases of this class		2		1	1							7

Detailed statement, 1906—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XIII:												
Injuries—												
Abrasio	1	90	1	90							2	552
Ambustio ex calore	1	59	2	55	6						1	470
Ambustio ex frigore	1	2		1	1	1						66
Asphyxia ex submersione		9			1					8		8
Concussio		12		7	1					4		34
Contusio	1	140	6	139	7						1	953
Deformitas	1	67	6	32	17	23			1		1	915
Fractura	2	88	6	59	32					1	4	1,354
Fluminis ictus		2	1	1	2							39
Hernia	1	95	14	22	64	22	2					810
Luxatio		22	5	15	10		1				1	208
Membranæ tympani ruptio		4		4								11
Membri clades		5	2	4	2					1		62
Musculi ruptio		3		3								59
Sole excoctus		9		9								9
Stremma	3	282	13	264	30						4	1,787
Virium defectio		5		4	1							42
Vulnus contusum	1	32		29	3						1	208
Vulnus incisum		72	2	67	7							445
Vulnus laceratum	3	102		83	19	1	1				1	813
Vulnus punctum		29	2	30	1							218
Vulnus sclopeticum		28	2	10	18					5	2	540
Other diseases of this class		4	1	3	1						1	23
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		4		4								25
CLASS XV:												
Poisons—												
Alcoholismus	1	88	5	78	13					2	1	397
Dermatitis venenata	1	25	1	26	1							173
Venenum irritans		1		1								6
Venenum neuroticum		6	2	1	5					2		23
Vulnus venenatum	2	49	2	48	5							465
Other diseases of this class		2	1	2	1							6
CLASS XVI:												
Feigned diseases		3		2	1							5
Total	144	10,053	1,507	8,627	2,658	183	22	5	3	39	167	66,535

General aggregate, 1906.

11. NAVAL HOSPITALS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
Class I.												
Parasites and parasitic diseases	18	13	308	296	2	....	....	....	3	....	38	6,708
Class II.												
General infectious diseases (non-venereal)	172	244	1,978	1,865	156	110	17	....	21	55	170	76,754
Class III.												
Constitutional disorders of nutrition	7	11	58	48	12	8	....	....	....	....	8	3,000
Class IV.												
Diseases of the nervous system	33	57	376	215	40	89	6	50	9	3	54	14,499
Class V.												
Diseases of the visual apparatus	19	24	164	117	18	55	1	....	1	....	15	6,565
Class VI.												
Diseases of the auditory apparatus	12	13	106	72	16	35	....	....	1	....	7	5,217
Class VII.												
Diseases of the olfactory apparatus	1	1	11	10	......	2	....	....	....	....	1	370
Class VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1— Diseases of the digestive apparatus	71	93	772	766	80	25	12	....	10	3	90	26,609
Subsidiary class 2— Diseases of the circulatory apparatus	22	40	226	144	17	87	2	....	4	7	27	10,892
Subsidiary class 3— Diseases of the respiratory apparatus	18	32	256	232	14	18	1	....	5	8	28	9,590
Class IX.												
Diseases of the motory apparatus	18	22	168	132	6	33	3	....	6	....	28	10,048
Class X.												
Diseases of the cutaneous apparatus	47	44	226	267	7	11	2	....	5	2	23	12,053
Class XI.												
Venereal diseases and diseases of the genito-urinary apparatus	260	275	1,429	1,480	36	156	8	....	40	7	237	86,898
Class XII.												
Cysts and new growths	1	5	41	36	......	4	1	....	1	2	3	1,445
Class XIII.												
Injuries	97	63	609	500	15	116	5	....	13	12	108	32,466
Class XIV.												
Extraneous bodies	....	......	8	7	......	....	....	....	....	....	1	404
Class XV.												
Poisons	5	19	77	75	......	12	2	....	1	2	9	2,029
Class XVI.												
Feigned diseases	....	......	1	1	......	....	....	....	....	....	....	4
Total	801	956	6,814	6,263	369	761	60	50	120	101	847	305,551

Detailed statement, 1906.

12. NAVAL HOSPITALS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I:												
Parasites and parasitic diseases—												
Pediculus			1	1								35
Scabies	15	11	294	282					3		35	6,243
Tænia			2	1							1	7
Tinea favosa			3	3								27
Tinea trichophytina		2	3	4							1	93
Other diseases of this class	3		5	5	2						1	303
CLASS II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		6	25	25	3						3	874
Catarrhus epidemicus	1	5	46	50			1			1		692
Denguis	2	35	32	65					1		3	889
Diphtheria		2	6	7					1			236
Dysenteria acuta	2	3	23	18	2						8	971
Dysenteria chronica	9	5	23	21	10	2					4	1,911
Erysipelas		1	6	4						1	2	197
Febris cerebro-spinalis	6	5	11	7					1	14		523
Febris enterica	16	30	152	165			3		8	11	16	9,775
Febris intermittens	21	14	245	247	3		4		10		16	7,839
Febris pneumonica	13	20	153	158	3	1			1	9	14	5,896
Febris remittens	3	4	61	62	2						4	1,982
Morbilli	1	26	309	332						1	3	6,183
Neuritis endemica		1		1								11
Parotitis epidemica		12	424	417							19	6,459
Pyæmia		3					1			1	1	52
Rheumatismus articularis acutus	18	4	126	119	4	9	1		2		13	7,215
Rheumatismus articularis chronicus	8	14	69	47	14	18			1		11	4,371
Rubella		1	12	13								270
Scarlatina		2	10	10							2	198
Tuberculosis miliaris acuta		2	4	2	1					1	2	192
Tuberculosis pneumonica acuta	9	4	21	8	17	4				3	2	1,392
Tuberculosis pneumonica chronica	53	35	194	53	94	72	7		1	12	43	17,286
Tuberculosis *of other parts*	6	6	5	7	3	4				1	2	933
Vaccina		1	12	12							1	169
Varicella	3	2	6	11								171
Variola	1	1	1	2							1	24
Other diseases of this class			2	2								63
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia	5	3	37	36	6	1					2	1,473
Debilitas senilis		1	4	1		1					3	284
Diabetes mellitus	1		5	2	1	3						264
Hæmophilia			3	3								198
Leucocythæmia		1	2		2						1	91
Lithæmia	1	1	1	3								65
Other diseases of this class		5	6	3	3	3					2	625
CLASS IV:												
Diseases of the nervous system—												
Apoplexia	2		2	2						1	1	154
Cephalalgia	1	1	9	6	3				1		1	383
Chorea		2	1			1		1			1	157
Dementia	4	8	41	15	2	10		19	4		3	1,199
Encephalitis		1				1						6
Epilepsia	2	8	39	15		22		1	1		5	1,337
Febris continua simplex	1	5	32	35							3	1,144
Febris ephemera	1		7	7							1	136
Febris thermica		1	1	1		1						85
Hemicrania	2	2	4	4		3				1		381
Hemiplegia			1	1								4
Mania	2		18	3	3	2		9		1	2	244
Melancholia	1	5	51	18	6	10		16	2		5	1,324
Meningitis			4	4								163
Monoplegia			3	1							2	62
Nausea marina			2	1		1						64
Neuralgia	1	1	7	6		1					2	346

Detailed statement, 1906—Continued.

12. NAVAL HOSPITALS—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Neurasthenia	4	12	53	35	11	10	6		1		6	2,127
Neuritis	1	3	29	19	2	2					10	1,686
Neuritis multiplex	1	2		1	1	1						97
Neurosis hysteroidea	1	2	6	5	2	1					1	229
Paralysis agitans	1		1	1	1							60
Paranoia		2	14	4	4	3		3			2	361
Paraplegia			4	1	1	1					1	515
Prostratio thermica		1	4	4	1							128
Sciatica	2		10	5	1	3					3	423
Sclerosis lateralis spastica		1	1			1					1	131
Sclerosis multiplex		1	2	1		2						61
Sclerosis spinalis posterior	2	1	2	2		2					1	567
Syncope		1	2	1		1					1	63
Vertigo	1		13	8	1	3					2	443
Other diseases of this class	3	2	13	9	1	7		1				469
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia	1		5	4		2						70
Amaurosis		2	3	2	2	1						213
Amblyopia	2	2	6	3	1	4					2	490
Asthenopia		2	22	14	2	8						515
Astigmatismus		1	3	1		3						96
Blepharitis	1		1	1		1						28
Cataracta			1			1						28
Chalazion			1	1								3
Choroiditis		1	2	1		2						223
Conjunctivitis	3	2	22	21	1	2					3	737
Corneæ ulcus		1	5	1	2	2					1	240
Dacryocystitis		1	2	1		2						73
Glaucoma	1		4	2	1	1					1	129
Hypermetropia			3			3						175
Iritis	2	2	16	14		1			1		4	754
Keratitis	1	1	4	5		1						261
Leucoma			1			1						17
Myopia			23	11	5	6					1	647
Neuritis optica	1		7	2	1	4					1	466
Obstructio lacrimalis		1	3	1	2						1	140
Panophthalmitis			1			1						40
Pterygium	4	1	19	19	1	3					1	494
Retinitis	2	1	4	8		3	1					320
Trachoma		6	2	6		2						145
Other diseases of this class	1		4	4		1						261
CLASS VI:												
Diseases of the auditory apparatus—												
Otitis externa		1	3	3		1						94
Otitis media	9	11	90	60	14	29			1		6	4,692
Surditas	3	1	11	9	1	5						356
Other diseases of this class			2		1						1	75
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1		1								26
Rhinitis acuta			4	4								121
Rhinitis chronica	1		6	5		1					1	216
Other diseases of this class			1			1						7
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary Class 1—Diseases of the digestive apparatus—												
Adenitis salivosa	1			1								1
Ani prolapsio			4	3							1	193
Ani rhagades		4	8	10							2	661
Appendicitis	23	15	142	145	5	2	4		3		21	6,379
Catarrhus gastricus acutus	2	3	27	29	1	1					1	1,108
Catarrhus gastricus chronicus	3	6	36	25	7	6	2				5	2,222
Catarrhus intestinalis acutus	2	4	12	15		1	1				1	286
Catarrhus intestinalis chronicus		2	8	8			2					320

Detailed statement, 1906—Continued.

12. NAVAL HOSPITALS—Continued.

Disease.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary Class 1—Diseases of the digestive apparatus—Cont'd.												
Cholelithiasis		3	18	9	2		1		2		2	831
Colica	1	1	9	10							1	176
Constipatio	2	2	4	4		1					3	293
Dentis caries		1	3	3		1						38
Diarrhœa simplex		1	17	17		1						631
Dyspepsia nervosa	1		3	2							2	144
Fistula in ano	3	1	25	21					2		6	1,686
Gastralgia			2	2								55
Hæmatemesis			2	2								10
Hæmorrhois	10	15	109	117		8			1		13	3,797
Hepatis congestio	1		4	4	1							428
Hepatitis chronica			1	1								52
Hepatitis suppurativa		2	5	3	1					1	2	391
Hypertrophia tonsillaris	1		4	4							1	93
Icterus		2	33	26	1				2		6	1,283
Intestini recti strictura		1				1						62
Obstructio intestinalis	2		3	3	1	1						116
Periproctitis			1	1								11
Peritonitis		1	1							2		2
Pharyngitis			6	5		1						176
Stomatitis			4	2		1					1	290
Tonsillitis	10	17	261	271							17	3,311
Ulcus gastricum	3	4	10	8	5	2					2	658
Other diseases of this class	6	8	15	15	6	3	2				3	915
Subsidiary class 2—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		1	2			1				2		43
Angina pectoris		1	2	1						1	1	32
Arteriosclerosis		1	1	1		1						216
Cordis dilatatio	1		4	2	1	1					1	182
Cordis hypertrophia			4	2		2						126
Cordis palpitatio	6	5	37	11	3	25			1		8	1,928
Cordis valvularum morbus	5	20	59	28	5	44				3	4	2,964
Endocarditis		1	1			2						107
Myocarditis			2		1	1						69
Pericarditis			2	2								61
Phlebitis		1	7	6	1	1						273
Thrombosis		3	4	3	1		1				2	238
Varix	4	1	50	40	2	6			1		6	1,980
B—Lymphatics—												
Bronchocele		1	4	3		2						140
Lymphadenitis	5	4	40	41	2		1		1	1	3	2,223
Lymphangitis		1	2	2							1	46
Splenypertrophia			1								1	62
Other diseases of this class	1		4	2	1	1			1			202
Subsidiary class 3—Diseases of the respiratory apparatus—												
Asthma	2	2	17	10	3	6				1	1	575
Bronchopneumonitis	2	5	13	14					1	5		372
Bronchitis acuta	4	4	74	74							8	1,459
Bronchitis chronica	1	8	53	43	6	4	1				8	2,566
Catarrhus bronchialis	2	1	27	25	2	1			1		1	748
Emphysema pulmonalis			1	1								27
Hæmoptysis	1	1	9	11								159
Laryngitis acuta	1		3	3							1	154
Laryngitis chronica		1	1	1		1						89
Œdema pulmonalis			1	1								2
Pleuritis acuta	1	3	45	35	1	2			2	2	7	1,952
Pleuritis chronica	1	3	9	7	2	2			1		1	565
Pleuritis purulenta		3	1	3							1	407
Other diseases of this class	3	1	2	4		2						515
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		1	5	2		2			1		1	338
Arthritis	2		14	9		4	1				2	899
Arthritis deformans		1	3	2	1	1						292
Bursitis			8	5							3	299
Caries			6	2	1	1					2	362

Detailed statement, 1906—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IX—Continued.												
Diseases of the motory apparatus—Continued.												
Contractura	....	1	4	3	1	....	....	....	....	....	1	339
Myalgia acuta	2	4	34	32	......	7	....	....	....	....	1	1,480
Myalgia chronica	3	3	27	21	......	1	1	....	3	....	7	1,378
Necrosis	2	2	5	6	......	2	....	....	1	....	....	549
Ostitis	....	......	6	2	......	3	....	....	....	....	1	380
Osteomyelitis	....	2	1	......	......	1	....	....	....	....	2	139
Periostitis	1	......	11	9	......	1	....	....	....	....	2	741
Synovitis	6	2	31	29	......	5	1	....	1	....	3	1,912
Thecitis	1	1	3	4	......	....	....	....	....	....	1	173
Other diseases of this class	1	5	10	6	3	5	....	....	....	....	2	772
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	15	16	85	98	1	3	....	....	3	1	10	4,212
Acne	....	1	......	1	......	....	....	....	....	....	....	70
Corbunculus	1	......	5	4	......	....	1	....	....	1	....	210
Cellulitis	7	1	22	27	......	....	....	....	....	....	3	1,099
Clavus	....	......	3	2	......	1	....	....	....	....	....	119
Eczema	4	......	18	19	......	1	....	....	....	....	2	1,224
Erythema	....	1	4	5	......	....	....	....	....	....	....	46
Furunculus	....	3	5	7	......	....	....	....	....	....	1	303
Herpes simplex	....	......	1	1	......	....	....	....	....	....	....	18
Herpes zoster	....	......	2	2	......	....	....	....	....	....	....	26
Impetigo	1	......	1	2	......	....	....	....	....	....	....	21
Lichen	....	1	2	3	......	....	....	....	....	....	....	161
Paronychia	....	......	1	1	......	....	....	....	....	....	....	7
Pemphigus	....	......	1	1	......	....	....	....	....	....	....	5
Pernio	....	......	1	1	......	....	....	....	....	....	....	11
Prurigo	....	......	9	9	......	....	....	....	....	....	....	229
Psoriasis	....	5	2	5	......	2	....	....	....	....	....	194
Ulcus	13	13	36	46	4	4	1	....	2	....	5	2,825
Unguis involutus	3	1	14	18	......	....	....	....	....	....	....	318
Urticaria	....	......	2	2	......	....	....	....	....	....	....	22
Verruca	1	......	3	4	......	....	....	....	....	....	....	190
Other diseases of this class	2	2	9	9	2	....	....	....	....	....	2	743
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	37	19	218	233	......	2	....	....	5	....	34	18,062
Arthritis gonorrhoica	14	17	87	58	10	30	....	....	3	....	17	6,329
Balanitis	....	......	1	1	......	....	....	....	....	....	....	34
Calculus	....	......	1	......	......	1	....	....	....	....	....	17
Chancroid	5	4	65	59	......	....	....	....	1	....	14	2,749
Cystitis	5	9	27	35	......	3	....	....	....	....	3	1,581
Enuresis	2	1	23	10	......	13	....	....	1	....	2	980
Epididymitis	10	12	65	79	......	1	....	....	2	....	5	2,917
Fistula urinalis	1	1	3	3	......	....	....	....	....	....	2	274
Gonorrhœa	29	55	144	193	5	7	....	....	1	....	22	8,199
Hæmaturia	....	......	3	3	......	....	....	....	....	....	....	127
Hydrocele	1	9	18	23	......	....	2	....	....	....	3	952
Nephritis acuta	3	1	9	9	......	....	1	....	....	2	1	603
Nephritis chronica	8	8	23	14	3	12	1	....	....	4	5	1,854
Nephrolithiasis	1	1	4	4	......	....	1	....	....	....	1	282
Ophthalmia gonorrhoica	3	1	13	13	......	3	....	....	....	....	1	693
Orchitis	6	6	52	54	......	....	....	....	....	....	10	2,313
Paraphimosis	....	1	6	5	......	....	....	....	1	....	1	261
Perinephritis	1	......	2	3	......	....	....	....	....	....	....	45
Phimosis	8	4	35	40	......	1	....	....	2	....	4	1,190
Prostatitis	....	1	14	12	1	1	....	....	....	....	1	991
Pyelitis	....	1	6	4	1	....	....	....	....	....	2	485
Syphilis consecutiva	104	100	392	409	14	72	2	....	19	....	80	31,230
Syphilis primitiva	6	8	17	27	1	....	....	....	1	....	2	1,504
Urethræ strictura	6	3	23	27	......	2	....	....	....	....	3	1,365
Urina suppressa	....	......	1	......	......	....	....	....	....	1	....	10
Urinæ retentio	1	......	2	3	......	....	....	....	....	....	....	117
Varicocele	7	13	164	150	1	5	1	....	3	....	24	6,347
Verruca acuminata	....	......	8	6	......	1	....	....	1	....	....	247
Other diseases of this class	2	......	3	3	......	2	....	....	....	....	....	140

Detailed statement, 1906—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XII:												
Cysts and new growths—												
Adenoma			1	1								8
Angeioma			2	2								59
Carcinoma		2	2	3						1		161
Chondroma			2	2								30
Cystis		2	19	16		2	1			1	1	538
Epithelioma			3	3								102
Fibroma	1		1	1					1			37
Lipoma			1	1								34
Osteoma			2								2	77
Sarcoma			1	1								22
Other diseases of this class		1	7	6		2						377
CLASS XIII:												
Injuries—												
Abrasio		1		1								11
Ambustio ex calore	2		14	11		1					4	881
Asphyxia		1	1							2		2
Aspyxia ex submersione		1	1	1						1		6
Concussio			6	4						2		36
Contusio	1	7	34	32	2	3					5	1,208
Deformitas	9	16	53	27	2	38					11	3,412
Fractura	27	6	116	95		19	1		1	3	30	9,008
Hernia	30	18	193	168	4	21	3		7		33	9,369
Ictus electricus			1							1		1
Luxatio	6		15	12		7					2	1,007
Membranæ tympani ruptio		1	2	3								25
Membri clades			5	2	1	2						121
Musculi ruptio		1									1	36
Stremma	6	5	62	56	1	9			1		6	2,079
Virium defectio			3	1		2						179
Vulnus contusum		1	11	9	1				1		1	507
Vulnus incisum	2	3	17	18	1					2	1	733
Vulnus laceratum	6	3	32	32	1	3			1		4	1,538
Vulnus punctum	2	1	8	8		1					2	460
Vulnus sclopeticum	4	2	23	14	2	7			1	1	4	1,291
Other diseases of this class	2	1	12	6		3	1		1		4	566
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum			8	7							1	404
CLASS XV:												
Poisons—												
Alcoholismus	2	13	44	50		4				1	4	986
Dermatitis venenata	2		4	4							2	80
Venenum neuroticum	1	2	9	6		3	1		1	1		294
Vulnus venenatum		1	13	10			1				3	391
Other diseases of this class		3	7	5		5						278
CLASS XVI:												
Feigned diseases—												
Malingering			1	1								4
Total	801	956	6,814	6,263	369	761	60	50	120	101	847	305,551

13. *Report of vaccination in the Navy and Marine Corps for the year 1905.*[a]

Classification.	Successful.	Unsuccessful.	Percentage of success.
Class 1.—No evidence of vaccination	1,555	1,605	49.21
Class 2.—Evidence of previous vaccination	3,160	8,794	26.43
Class 3.—Evidence of attack of smallpox	6	81	6.89
Total	4,721	10,480	30.85

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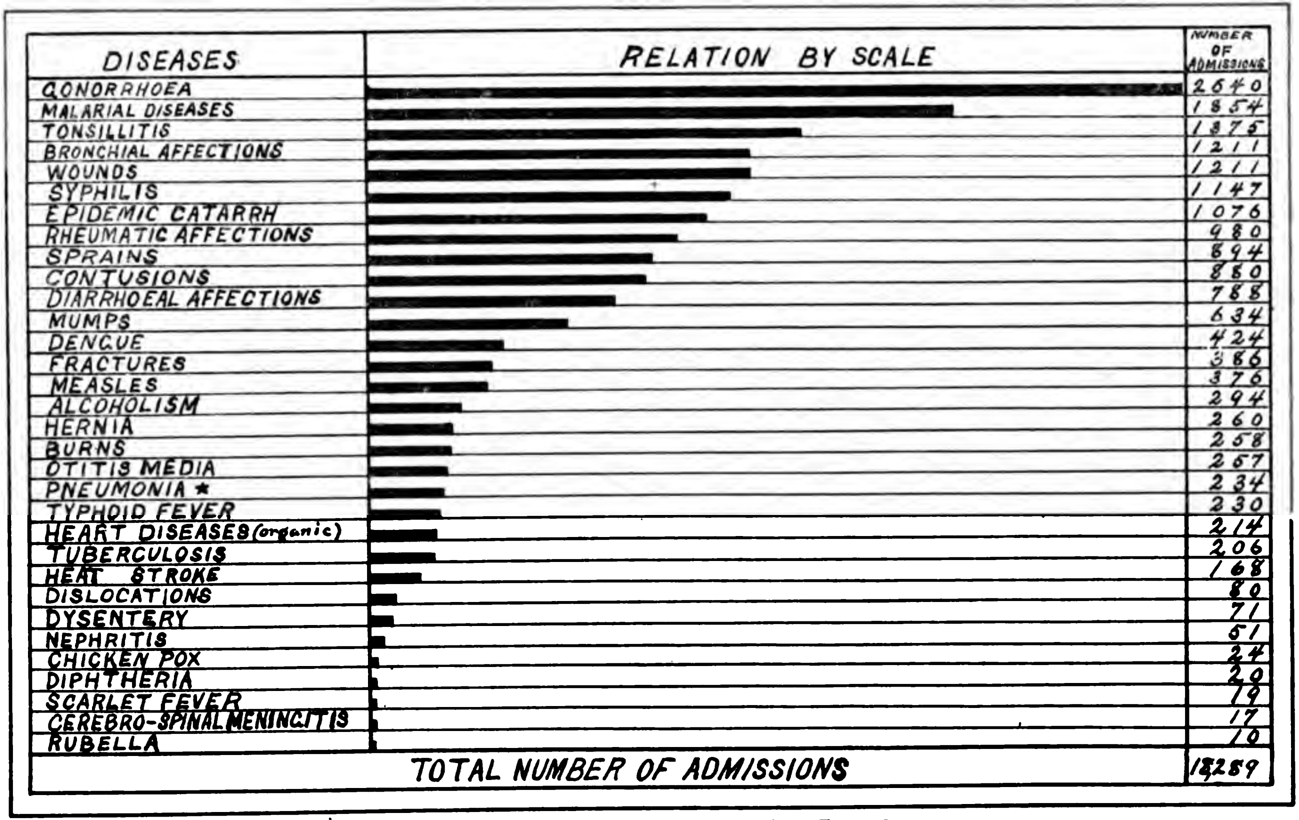
[a] Includes only cases in which results were determined. Many were undetermined by reason of transfer.

XIV

PREVALENCE OF SPECIAL DISEASES AND INJURIES IN THE NAVY AND MARINE CORPS DURING THE YEAR 1906.

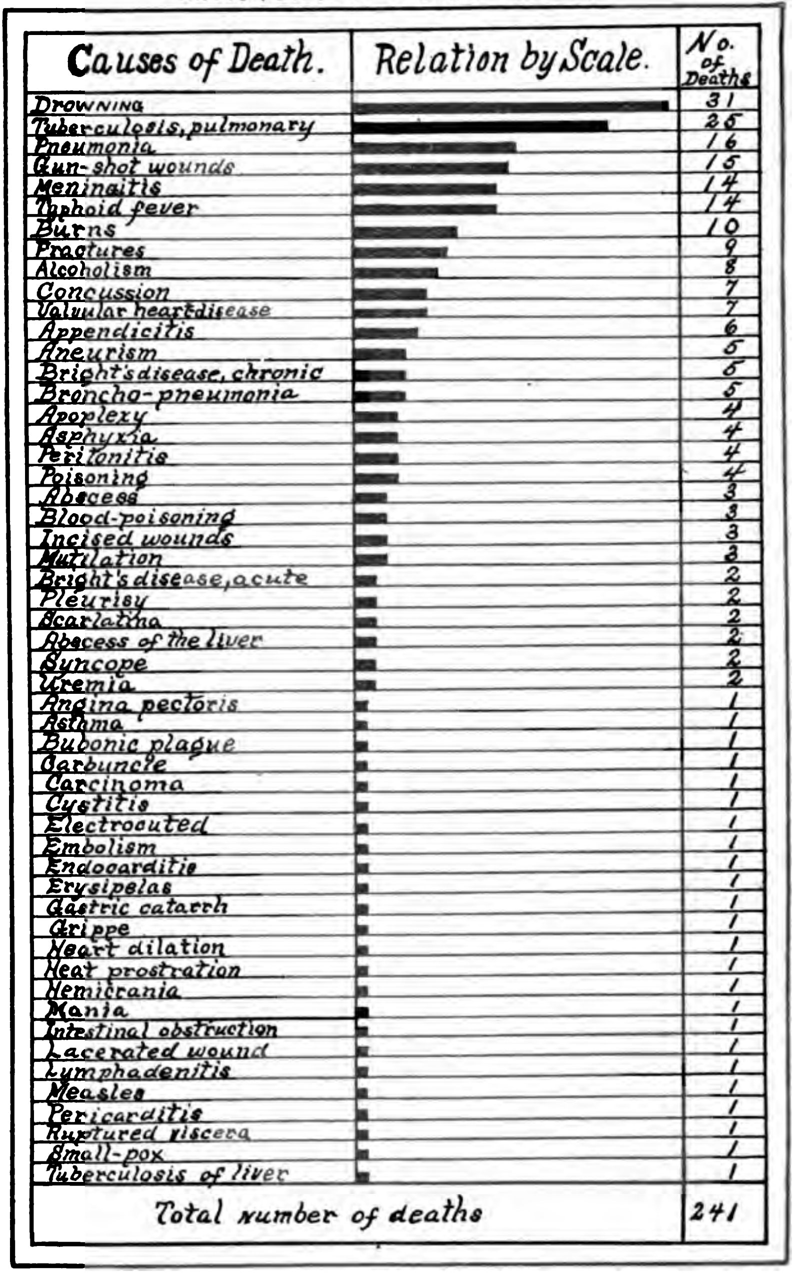


★ BRONCHO-PNEUMONITIS, WITH 30 ADMISSIONS, IS INCLUDED UNDER THIS TITLE.

14000—07——10

XVI

DEATHS IN THE NAVY AND MARINE CORPS DURING THE YEAR 1906.
(AVERAGE STRENGTH 42529; NUMBER OF DEATHS 241;
RATIO PER 1000 OF STRENGTH 5.66)



Causes of Death.	Relation by Scale.	No. of Deaths
Drowning		31
Tuberculosis, pulmonary		25
Pneumonia		16
Gun-shot wounds		15
Meningitis		14
Typhoid fever		14
Burns		10
Fractures		9
Alcoholism		8
Concussion		7
Valvular heart disease		7
Appendicitis		6
Aneurism		5
Bright's disease, chronic		5
Broncho-pneumonia		5
Apoplexy		4
Asphyxia		4
Peritonitis		4
Poisoning		4
Abscess		3
Blood-poisoning		3
Incised wounds		3
Mutilation		3
Bright's disease, acute		2
Pleurisy		2
Scarlatina		2
Abscess of the liver		2
Syncope		2
Uremia		2
Angina pectoris		1
Asthma		1
Bubonic plague		1
Carbuncle		1
Carcinoma		1
Cystitis		1
Electrocuted		1
Embolism		1
Endocarditis		1
Erysipelas		1
Gastric catarrh		1
Grippe		1
Heart dilation		1
Heat prostration		1
Hemicrania		1
Mania		1
Intestinal obstruction		1
Lacerated wound		1
Lymphadenitis		1
Measles		1
Pericarditis		1
Ruptured viscera		1
Small-pox		1
Tuberculosis of liver		1
Total number of deaths		241

15. *Mortuary record of the Navy and Marine Corps for the year 1906.*

Cause of death.	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.
Abscessus	1				1
Alcoholismus	1	2	5		8
Ambustio ex calore			10		10
Aneurysma	2		1	2	5
Angina pectoris	1				1
Apoplexia	1	2	1		4
Appendicitis		3	3		6
Asphyxia	2		2		4
Asphyxia ex submersione	1	8	20	2	31
Asthma	1				1
Broncho-pneumonitis	5				5
Bubonic plague			1		1
Carbunculus	1				1
Carcinoma	1				1
Catarrhus epidemicus	1				1
Catarrhus gastritus acutus			1		1
Concussio	2	4	1		7
Cordis dilatatio				1	1
Cordis valvularum morbus	3	1	3		7
Cystitis	1				1
Embolismus			1		1
Endocarditis			1		1
Erysipelas	1				1
Febris cerebro-spinalis	14				14
Febris enterica	11	1	2		14
Febris pneumonica	9	3	3		15
Fractura	3	1	5		9
Hemicrania	1				1
Hepatitis suppurativa	1	1			2
Ictus electricus	1				1
Lymphadenitis	1				1
Mania	1				1
Membri clades		1	2		3
Morbilli	1				1
Nephritis acuta	2				2
Nephritis chronica	4	1			5
Obstructio intestinalis			1		1
Pericarditis			1		1
Peritonitis	2	1	1		4
Pleuritis acuta	2				2
Pneumonia				1	1
Prostratio thermica			1		1
Pyæmia	1		1		2
Scarlatina			2		2
Septicæmia		3			3
Syncope			2		2
Tuberculosis miliaris acuta	1				1
Tuberculosis pneumonica acuta	3		1		4
Tuberculosis pneumonica chronica	12		1	7	20
Tuberculosis of other parts	1				1
Uræmia			1		1
Urina suppressa	1				1
Variola			1		1
Venenum neuroticum	1	2	1		4
Visceris ruptio				1	1
Vulnus incisum	2		1		3
Vulnus laceratum			1		1
Vulnus sclopeticum	1	5	9		15
Total	101	39	87	14	241

CONCLUSION.

The increase of work incident to the growth of the Navy has been efficiently performed by the clerical force of the Bureau, though their number has not been correspondingly increased. Commendation is due them for their faithful attention to duty, without which the business of the Bureau could not have been kept up to date.

The work of the supply depots has been conducted with promptness and dispatch and reports from all stations and ships characterize the medical and surgical supplies as being entirely satisfactory in both quantity and quality. Additions and improvements are occasionally suggested by medical officers throughout the service, and these are given due consideration in the periodic revision of the supply table.

The officers of the Medical Corps have manifested a gratifying interest in and a faithful attention to duty and have observed high professional standards in the performance of all services that they have been called upon to render. The Hospital Corps has also rendered good and faithful service, and gives splendid promise for the future under the bettered conditions contemplated in the proposed legislation. Indeed, a comprehensive review of the work of the Medical Department during the past year shows increased efficiency in every direction, and it is hoped to continue the development and improvement in the medical establishment of the Navy in all its branches. We look to the schools, Naval Medical School and Hospital Corps Training School, in great part for certain aid to this end, but with a view to insuring a full and efficient discharge of the growing responsibilities of the Medical Department it is hoped that the recommendations of the Bureau to the Department for the reorganization of the Hospital Corps and for the establishment of a corps of dental surgeons and a corps of female nurses may meet with favorable action by Congress.

P. M. RIXEY,
Surgeon-General, U. S. Navy.

The SECRETARY OF THE NAVY.

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NAVY DEPARTMENT
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT

OF THE

Surgeon-General, U. S. Navy

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE

SECRETARY OF THE NAVY

FOR THE FISCAL YEAR

1908

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REPORT

OF THE

SURGEON-GENERAL, UNITED STATES NAVY.

Department of the Navy,
Bureau of Medicine and Surgery,
Washington, D. C., October 1, 1908.

Sir: In obedience to instructions contained in the department's letter of July 1, 1908, I have the honor to submit a report of the operations of this bureau for the fiscal year ending June 30, 1908, together with a set of annual estimates for the fiscal year 1910. The report also shows the condition of the naval hospital fund, and contains information and recommendations concerning the various subjects which appear in the list of contents, including tables and charts of important data relating to the health of the Navy and Marine Corps, ashore and afloat. In so far as health conditions and vital statistics are concerned the records of the calendar year 1907 are alone considered.

The general health of the naval service shows a gratifying improvement over last year, the ratio of morbidity per 1,000 of force being 787.23 in 1906 and 691.40 in 1907. Indeed, this is eminently the best showing in health conditions for over twelve years, and as the gain can not be attributed, even by conceding greater care on the part of recruiting officers, to a higher physical standard of recruits, the fact indisputably argues the navy's participation in the advance of preventive medicine and bespeaks the increased activity of the Medical Department in the application of the principles of modern hygiene and sanitation under naval conditions. This marked reduction in the morbidity rate is not a coincidence, for the improvement has been progressive and practically uninterrupted for the past twelve years, in spite of a considerable annual growth in naval strength and the fact that a great part of the increase last year was realized within such a short period of time that the receiving stations became dangerously overcrowded. The health condition in 1907, as compared with 1906, is more graphically shown and may be more clearly appreciated by the following statement:

Mean strength of the navy for the calendar year 1906	41,690
Mean strength of the navy for the calendar year 1907	44,083
Increase of mean strength for the calendar year 1907	2,393
Admissions to the sick list for the calendar year 1906	32,517
Admissions to the sick list for the calendar year 1907	30,479
Decrease of admissions to the sick list for the calendar year 1907	2,038
Decrease in ratio per 1,000 of admissions to sick list for calendar year 1907	91.83

Separating the naval force according to the three great divisions of the naval service—sea, shore at home, and shore beyond the continental limits of the United States—and calculating anew the morbidity rate appertaining to each, we find, perhaps what in general we should expect, that the first-named service gives a ratio of 521.02 per 1,000; the second, 880.19 per 1,000 (exclusive of hospitals); and the third, 960.36 per 1,000 (exclusive of hospitals). The conclusion is of course unavoidable that morbific influences are least prevalent or that conditions which make for health are best at sea, while morbific influences have their greatest prevalence or the conditions which make for health—for constitutional resistance to disease—are much less potent at the outlying naval stations as a group. The important lessons which these plain facts teach will be discussed elsewhere in this report.

The ten principal causes of disability, arranged in order beginning with the greatest, were: Gonorrhea and other venereal diseases; wounds, burns, and other injuries; tonsilitis; epidemic catarrh; malarial diseases; bronchial affections; rheumatic affections; gastrointestinal affections; the exanthemata; and infectious diseases other than those included in the above. General infectious diseases were pretty widely distributed throughout the service, though, as was most natural, they were represented in greatest variety and numbers, respectively, at training stations and on receiving ships. Omitting the *Franklin*, which both serves as a receiving ship and acts as headquarters of the Norfolk Training Station, and which shows a total of 932 admissions for general infectious diseases, we find that the two other training stations show a total of 2,175 admissions for the same class of diseases, while all other receiving ships show a total of 1,001 admissions.

A comparison of the monthly recruiting records of 1907 shows a tremendous increase in the number of enlistments during the last half of the year, and particularly during the last quarter. While credit must be given and due allowance made for the new methods adopted to stimulate enlistments, and the improved system of recruiting inaugurated by the Bureau of Navigation, it is to be observed that the striking increase in the naval force corresponded in time with the recent financial crisis and the resulting far reaching depression of industrial activity and business operations in general. The government services felt the effects of those unsettled and trying conditions, and the navy in particular experienced a popularity among the unemployed of the country, who, in addition to their quest for occupation under the impelling influences of short rations, were attracted by the widely discussed cruise of the Atlantic Fleet around South America to the Pacific, and by the public's enticing speculations as to its subsequent itinerary. The number of applicants for enlistment took an almost sudden upward bound under these circumstances, and the recruiting offices all over the country were kept busy until the authorized strength of the naval force was reached. This unusual activity in recruiting piled men upon the receiving ships, especially those in the East, and taxed their capacity to the utmost—crowding raw recruits together in a most insanitary manner and embarrassing the maintenance of effective hygienic supervision. This experience happily passed over without serious consequences, owing to the fact that the situation did not reach proportions beyond control by the perpetual vigilance and untiring efforts of those charged with the care of these men; but it was not altogether without ill consequences, as the record of infectious diseases will indicate, and it serves, moreover, to direct attention to the warning which the bureau expressed last year when commenting upon the inadequacy of the receiving accommodations. We are awakening to a new era of health and we can not afford to ignore any sound dictate of the times which will insure physical efficiency—not alone of the materiel, but the personnel of the navy.

ESTIMATES.

The estimates submitted by the bureau for its regular annual appropriations do not differ in any material respect from those submitted in previous years except that changes in titles of the naval medical supply depots and Naval Medical School, authorized by the department, have been noted in the appropriations "Medical Department," "Contingent," and "Repairs." Under "Medical Department" the bureau has estimated for $300,000 for the fiscal year 1910 as against $270,000 for the fiscal year 1909, and under "Contingent" for $70,000 for 1910 as against $60,000 for 1909, to meet the increased expenses incident to the enlistment of 6,000 additional men in the navy and 803 additional men in the Marine Corps, authorized by the naval act of May 13, 1908.

In my preceding report for the fiscal year 1907, under the caption of "Naval hospital fund," I stated in connection with the question of appropriations by Congress for the establishment and enlargement of naval hospitals that the necessity for such appropriations no longer exists, and that the revenues of the naval hospital fund provide an ample income to meet all necessary requirements without congressional appropriation if authorized by the Secretary of the Navy, the sole trustee of the fund. Since the foregoing statement was made the department has authorized the expenditure of moneys from the naval hospital fund for the building, remodeling, and bringing up to modern conditions the naval hospitals at Portsmouth, N. H., Chelsea, Mass., Newport, R. I., Philadelphia, Pa., Washington, D. C., Norfolk, Va., Las Animas, Colo., and Mare Island, Cal. With the funds thus provided, these hospitals will be placed in a state of thorough repair, their capacity increased by additional wards, and modern conveniences and equipment given them. New hospitals will be erected at Portsmouth, N. H., and Newport, R. I., when suitable sites have been acquired.

For the first time in many years no estimates for public works will be transmitted with this report.

HOSPITAL FUND.

The condition of this fund is as follows, viz:

Balance on hand July 1, 1907	$1, 055, 176. 34
Transferred to credit since July 1, 1907	686, 937. 84
Total	1, 742, 114. 18
Expended since July 1, 1907	126, 565. 05
Balance on hand June 30, 1908	1, 615, 549. 13

MEDICAL CORPS.

At the beginning of the fiscal year ending June 30, 1907, the Medical Corps of the Navy consisted of 15 medical directors, 15 medical inspectors, 87 surgeons, 87 passed assistant surgeons, 61 assistant surgeons, and 18 acting assistant surgeons appointed for temporary service under the act of Congress approved May 4, 1898. There were 58 vacancies at this time, which embraced those caused by retirement, death, and resignation, and 25 additional, which became available on January 1, 1907, by operation of the act of 1903 providing for such annual increase of the corps up to and including 1908. During the past fiscal year no changes occurred in the regular corps on account of death or retirement for age, but there were three retirements in the grade of surgeon for disability contracted in the line of duty, 7 resignations (3 passed assistant surgeons and 4 assistant surgeons), 2 dismissals (1 surgeon and 1 assistant surgeon), and 39 appointments as assistant surgeon, which, with the last increase of 25 in the size of the corps allowed by law for 1908, as above mentioned, left 51 vacancies to be filled at the close of the fiscal year 1908.

This represents an improvement over last year, and it is hoped and believed that the greater inducements for service in the navy provided by the act of Congress approved May 13, 1908, will attract a sufficient number of young medical men, and that each succeeding year will show a decrease in the vacancies until the Medical Corps has been recruited to its allowed strength, so necessary to the efficient discharge of the important duties which the Medical Corps is called upon to perform.

The two medical examining boards, one at Washington, D. C., and the other at Mare Island, Cal., have been in continuous session for the examination of candidates for appointment. One hundred and one permits were granted, but only 97 candidates presented themselves, and these included some applicants to whom permits had been given prior to July 1, 1907, the beginning of the fiscal year.

Table showing applicants examined for admission to the Medical Corps of the Navy from July 1, 1907, to June 30, 1908, and place of examination and result.

Where examined.	Total number examined.	Qualified.	Rejected physically.	Rejected professionally.	Withdrew.
Washington, D. C	94	40	25	24	5
Mare Island, Cal	3		2		1
Total	97	40	27	24	6

The discrepancy between the number of applicants who were found qualified and the number of appointments is explained by the fact that one of the number declined his commission for reasons which legally debarred him from its acceptance.

The percentage of successes in comparison with the number examined is as small as last year, yet the required standard of professional qualifications is none too high. It is very important to the nation that the Naval Medical Corps should be strongly officered, in justice to the responsibility imposed upon naval surgeons, and the only way to effect this is by requiring a high standard of personal and professional qualifications at the entrance examinations and by exacting that throughout their service they shall keep abreast with their profession and that each officer shall be a worker and not a drone in the service with which he is identified. The periodic examinations for promotion, also for this reason, are thorough and searching, and it is the more gratifying, therefore, that only one officer failed to qualify.

The strength of the corps during the period embraced in this report has averaged about 300, and allowing about 2 per cent each for sickness, leave, and unemployed (on waiting orders or in transit), and eliminating from consideration the number who have been on recruiting duty and those employed at the schools, laboratories, bureau offices, and on regular boards (about 60 in all), it may be seen that there were only about 240 medical officers available for the care of 46,336 officers and men of the Navy and Marine Corps and for all purposes other than the duties specified above, both ashore and afloat. As a matter of fact, there were less than 240 medical officers to meet the service's demands for practical professional work, 35 of them having been in attendance upon a course of instruction at the Naval Medical School for six months and 11 for a period of three months, which, estimated on the basis of a year, is approximately equivalent to 20 medical officers, and further reduced the list of officers available for general service to 220, theoretically giving a ratio of 1 medical officer to every 210 men. This represents a state of affairs during the year, as regards medical supervision, which was decidedly worse than the previous year, when the ratio was 1 to 167, and, unfavorable to the best results as is even this large disproportion, it is destined to be much greater in view of the authorized increase of the Marine Corps by 53 officers and 750 men and of the naval force by 6,000 men. It was pointed out in last year's report that there were not nearly enough medical officers to carry on the duties properly pertaining to the Medical Department with such thoroughness as is desired and expected without greatly overworking the members of the corps, and even should the ranks of the corps become filled it will be necessary in the very near future to seek authority for a further increase in the strength of the Medical Corps, and at the same time a reapportionment of the upper grades, particularly those of medical inspector and surgeon, the former of which has for years been denied just consideration and relief in conformity with the proportion which now obtains as between the corresponding grade and the whole strength of other branches of the service and in conformity with the needs of the larger navy. Reapportionment of the higher grades of the Medical Corps of the Navy is not only desirable from the point of view of organization, but experience has amply demonstrated the practical necessity of such a change, and it is earnestly hoped that definite and conclusive action may be taken upon the recommendation of the staff board in this and associated questions.

The personnel act of March 3, 1899, made no provision for increase in any grade of the Medical Corps, but materially increased the upper grades of the line—that of commander from 85 to 103 and that of captain from 45 to 68. In 1903, however, Congress granted a large increase in the three lower grades of the Medical Corps, but no increase in the two higher grades. There are now the same number of medical directors and medical inspectors (though the Medical Corps has been increased to 345 and the aggregate strength of the Navy and Marine Corps prospectively increased to about 55,000) as was allowed in 1883, and when the Medical Corps numbered 171 and the enlisted force of the Navy and Marine Corps 16,000. In 1883 the number authorized in each of these grades was a little less than 9 per cent of the whole corps; in 1904 the percentage had fallen to 6 plus; and now that the last installment of the annual increase provided by the act of 1903 has become available, the per cent is further reduced to 4 plus. It has been necessary to draw upon the older surgeons to perform duties which properly belong to medical inspectors, and, similarly, the older passed assistant surgeons have been drawn upon to perform duties which properly belong to surgeons.

But there are more impelling arguments for remedial attention to this state of affairs than these statistical facts, impressive and convincing though they may be, and these are represented by the greater and constantly growing demands upon the Medical Corps, imposed not only by the increase of the naval personnel in other branches and the extension of the naval establishment generally, but by the progress made in medical sciences and the greater demand upon the time of the practitioner incident to new and improved technical procedures. The exactions of medical progress can not well be evaded. Innumerable methods of diagnostic precision and therapeutic practice must now be employed in the proper and efficient application of medical sciences which in the not distant past were unknown, and one man could then accomplish much more with entire fidelity to the established standard of excellence in the light of his period. To-day the standard of excellence in the same field of work is vastly more complicated and infinitely detailed, and the observance of every procedure recognized as indispensable to the proper study, prevention, and management of disease necessitates a division of work—a greater number of men to cover the same ground.

During the past year, as previously, the shortage of medical officers has been a matter of constant embarrassment as regards assignments to fill existing billets, and the overburdening of individual officers at certain stations has threatened medical department efficiency and jeopardized its record of good results.

The bureau has continued, unabated, its efforts to fill existing vacancies by such legitimate methods as were set forth in last year's report, and, in addition, by the publication of information concerning the service in various medical journals of wide circulation. Particular effort was made to give publicity to the new inducements provided by recent legislation, and circulars were sent broadcast giving an account of the conditions in the Naval Medical Department and pointing out the opportunities which have now been provided for those who are eligible to appointment.

In connection with the shortage of officers it seems important that we should guard against any possible abuse of the retired list and the entailed complete loss to the Government where, as a matter of fact, the individual usefulness has only been impaired. There seems to be need of making some provision by law or regulation which will save the services, particularly of young men who may not be permanently disabled.

During the past year the corps has been about equally divided in the performance of shore and sea duty, but the proportion of sea and shore duty is not 50 to 50, owing to the fact that periods of shore duty have, up to the present time, not been of equal duration. The normal period of shore duty for medical officers, however, seems to be growing longer by the natural influence of circumstances, and will soon more nearly approximate an equal division of time at sea and ashore. This is as it should be, for on shore the medical officer finds his best opportunity to advance professionally and keep abreast with the current progress, and therefore the best interests of the service are more certainly met.

The work of the corps throughout the service is characterized by a high standard of excellence, and much original work and research has been reported from various stations—notably Guam and the Naval Hospital, Las Animas, Colo. Passed Assistant Surgeon Geiger has been making exhaustive studies of the diseases peculiar to Guam, and the results of his labor as published in the Naval Medical Bulletin are valuable in the extreme, elucidating problems of etiology and giving rational bases to therapeutic measures, and, consequently, insuring greater benefits from methods of treatment employed. In connection with these studies Surgeon McCollough has contributed important information on the clinical aspect of the diseases in question, and the work of both of these officers is deserving of high commendation.

Surg. B. L. Wright seems to have made an important discovery in the treatment of tuberculosis, and if the striking benefits thus far observed at Las Animas, Colo., from the administration of mercury, reports upon which have been published in the Naval Medical Bulletin, are proved absolute and reliable by accumulated experience, this officer will have made a tremendous contribution to the fight against the "great white plague," redounding to his own reputation and reflecting credit upon the navy.

Many other contributions to the advance of medicine have been made by members of the corps at home and abroad, and every encouragement and opportunity, consistent with the routine requirements of the service, are given to those showing initiative in any direction that has the development of science and the good of the service as its object.

"It is not the required work. but the voluntary work which a man does that counts in his fulfillment of high professional standards. A good physician can never be turned out as a finished product. He must be constantly reaching out after perfection, even though at times it appears impossible of attainment," and he must be certain that what he undertakes he does to the best of his ability, within the judgment of his own conscience, if he expects to satisfy others and add his quota to solid progress. The field for the professional activities of naval surgeons is large, and there are plenty of problems both of medico-naval concern and of general scientific interest to call in play their best energies, their keenest powers of observation, and their nicest ability in investigation.

Occasionally officers are given "special duty" details for the purpose of studying and working out the solution of problems intimately identified with naval efficiency, making comparisons of our ideas and methods with those of other institutions or services, and formulating practical deductions from recorded experience or gleaning any new and meritorious suggestions from the fields studied, with a view to their application or adaption to our needs. Medical Inspector Beyer has been serving under such an assignment since his return from sea, and the results of his work thus far have been of the greatest value. Surgeon Gatewood, in addition to his regular duties as a member of the Naval Medical School faculty, is engaged in the preparation of an important work, which promises to be of inestimable value as a hygienic and sanitary guide to the naval service. Passed Assistant Surgeon Balch served under "special detail" to investigate the equipment of, and methods of instruction at, the schools of tropical medicine abroad, in England and on the Continent; to familiarize himself with the character of work being done and the technique employed in the leading laboratories of the countries visited; and to study the hospitals at and the diseases peculiar to Cairo and Calcutta en route to the Philippines. The report of his observations, as published in the Naval Medical Bulletin, has given to the service a fund of information which will aid the bureau in many directions. The definite import of an officer's labors under such circumstances may not be apparent from month to month, but the results are, nevertheless, forthcoming, and are of broad utility in the progress which the Medical Department, like every other branch of the navy, is striving to accomplish for the benefit of the whole service. The practice will be continued whenever it seems desirable.

In view of the fact that during the past year resignations were tendered by two assistant surgeons within a year after having completed the course of instruction at the Naval Medical School, and in recognition of the danger to service efficiency and the abuse of privileges which a continuance of this practice involves, the bureau deems it desirable and, in fact, necessary that some steps be taken to restrain any disposition to resign before young medical officers have rendered fair return for benefits received, and to protect the Government against an abuse of the educational opportunities which it now offers with the single purpose of fitting the recent entrant for the service. Up to the time of their graduation from the Naval Medical School they have been the recipients of valuable professional benefits at the expense of the Government, and under the full pay and allowances of their grades, and, with the exception of the few who give a few months' service before the course of instruction begins, have rendered practically no return to the Government. It is therefore submitted that, as a part of the examination proceedings and as one of the conditions upon which acceptance should be based, all candidates for commissions as assistant surgeons be required to sign an agreement to serve at least three years from the date of the completion of their six months' course of instruction at the Naval Medical School, unless earlier terminated by the Government, and a general order or other departmental action to this effect is recommended.

ACTING ASSISTANT SURGEONS.

The employment of the grade of acting assistant surgeon which was created by the act of 1898 has been continued during the past year, and the bureau regards it with increasing favor as a provision of law representing distinct advantages and out of which great benefit accrues both to the service and the individual who seeks appointment in the grade as a stepping stone to the regular corps. This phase of the subject was given detailed consideration in last year's report and need not be discussed again; suffice it to say that it has again been the means of recruiting the commissioned ranks with some young men of excellent attainments and fine character who might otherwise have looked upon a naval career as beyond their reach.

At the beginning of the fiscal year 1908 there were 18 in the grade, which was 7 short of the authorized strength, and the number of vacancies constantly fluctuated by virtue of resignation and promotion. This year, also, one vacancy was created by dismissal; one resigned upon his own initiative, 3 were permitted to resign upon failing to qualify for commission as assistant surgeon after the course of instruction at the Naval Medical School, and 10 successfully passed the required examination and were commissioned. At the close of the fiscal year there were 15 in the grade. Of this number 3 are serving under old appointments, once renewed, which expire in 1909 (2 in January and 1 in July), when the question of another renewal of appointment will probably come up. These 3 officers have rendered creditable and faithful service, but 2 of them are unfortunately physically disqualified for the regular corps.

Only 32 permits to take the examination for appointment were issued during the fiscal year 1908; but 35 applicants were examined, which number included an undetermined few to whom permits had been issued prior to July 1, 1907.

Table showing applicants examined for appointment as acting assistant surgeons in the navy from July 1, 1907, to June 30, 1908, and place of examination and result.

Where examined.	Total number examined.	Qualified.	Rejected physically.	Rejected professionally.	Withdrew.
Washington, D. C	12	5	5	2	
Mare Island, Cal	3	1	2		
Philadelphia, Pa	15	7	1	1	6
New York, N. Y	4	1	1	1	1
Chelsea, Mass	1		1		
Total	35	14	10	4	7

The five boards for the examination of applicants for appointment as acting assistant surgeons, located as follows: Washington, D. C., Mare Island, Cal. (these two being the same boards organized to examine applicants for commission as assistant surgeons), Philadelphia, New York, and Chelsea, are composed of medical officers, all of whom have some other paramount duty. They are nevertheless in continual session, so that no candidate is discouraged nor likely recruits sacrificed by deferred examination.

The policy of the bureau respecting the assignment of newly appointed acting assistant surgeons has been observed as strictly as considerations of economy in mileage and the requirements of service would permit. The majority were detailed for duty at one or another of the hospitals where they would be under guidance and observation, but it was found necessary to temporarily employ a few members of the grade on recruiting duty and in other kinds of service. Only three performed sea duty, and these were of the number serving under old appointments. The services rendered by even the newly appointed members of the grade were, in the main and in spite of their lack of familiarity with service conditions, unexpectedly satisfactory and valuable to the Government, and, with one or two exceptions, they passed through the probationary period, in general service and under instruction at the Naval Medical School, with a creditable showing. Indeed, the various officers under whom the members of this grade have been placed for instruction have observed the earnest application, greater industry, and disposition to make the utmost of opportunities offered, which is natural in a man on trial, as it were, to demonstrate his worth and capabilities. It would seem probable, as a general rule, that there is a healthful uncertainty about the future, among those in this grade, which leads them to strive for the utmost benefits of the course. The bureau has been so impressed by the accumulated evidence of the advantages of the grade that it has seriously considered the proposition to require all candidates for the Medical Corps to enter and serve a probationary period in this grade until the completion of the course of instruction at the Naval Medical School. There are many arguments in favor of such a plan, but upon further careful consideration, particularly after the enactment of the last session of Congress, the idea of its inauguration was abandoned (at least temporarily) as endangering the attractiveness of the naval service and operating to turn good candidates away from us.[a] It is believed, however, that those who elect, for one reason or another, to enter the service as acting assistant surgeons should be required to serve as such until the completion of the course of instruction, or for a certain number of months at least, before they can be considered as eligible for orders to appear for examination for promotion and to the travel expenses incident to compliance therewith. Some departmental regulation in this direction is recommended, and if promulgated would prevent such abuse of the Government's generosity as the designed use of a position in the grade as a means to defray expenses necessary to appear for examination for the regular service by a candidate who is fully prepared and intending from the first to try for assistant surgeon. Moreover, it would check any undue haste of those candidates not fully prepared and save the Government the expense of bringing them before a board only to see them fail, and then returning them to their stations.

The plan announced in last year's report to require all acting assistant surgeons to take the examination for the regular service immediately after completing the course of instruction at the Naval Medical School and before being ordered out into general service was given a practical test this year and the economy to the Government in time and money and the increase of efficiency resulting, justifies the belief that it is a wise practice.

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[a] On October 8, 1908, the Secretary of the Navy issued an order, upon recommendation of the Bureau of Medicine and Surgery, canceling permits for examination for assistant surgeon of candidates who had not reported for examination. Hereafter candidates for admission to the Medical Corps of the United States Navy will be examined only for and will enter as acting assistant surgeons, and on the 1st day of October following they will be ordered to the Naval Medical School for a period of six months' instruction. At the expiration of this tour of duty the whole class will be examined for the position of assistant surgeon, the standing of each in the class during the school term being taken into consideration and fixing the individual standing in relation to the officers of the corps for all times in so far as rank is concerned.

The recommendation relative to assistant surgeons, that a contract of service be required in compensation for the prospective course of instruction at the Naval Medical School, is equally applicable to acting assistant surgeons, and it is recommended that, before acting assistant surgeons who have recently entered the service are ordered in attendance upon the six months' course of instruction at the Naval Medical School, they be required to sign an agreement similar to that suggested for assistant surgeons.

MEDICAL SCHOOL.

The bureau gave detailed consideration to this subject in its report for 1907, and will, therefore, here confine its remarks to the record of the last year and such new matters as have arisen in connection with the development of the institution.

The school opened for the session of 1907–8 on October 1, 1907, and continued its work over a period of nine months, comprising a winter and spring term as heretofore—one month intervening. The former (six months in length) was attended by a class of 35 officers—26 assistant surgeons and 9 acting assistant surgeons—the largest in the history of the school, taxing its facilities to the utmost capacity. The spring term was attended by a class of 11 officers—all that could be spared from general duty—composed of 4 surgeons, 4 passed assistant surgeons and 3 assistant surgeons, the majority of whom had but recently returned from a full tour of sea duty and were in need of professional refreshment, particularly in laboratory technique and the new procedures in diagnosis and treatment.

Of the 35 student officers who were in attendance upon the winter term, all except 2 acting assistant surgeons were successful in the final examinations and received certificates of graduation. Four of the number, Asst. Surgs. M. A. Stuart, S. L. Higgins, J. T. Miller, and C. W. O. Bunker, graduated with honor, having attained a percentage of 80 or above; Asst. Surg. M. A. Stuart standing first in his class. The closing exercises, including the award of diplomas, were held on March 31, after which the assistant surgeons departed for the stations to which they had been assigned, and the acting assistant surgeons reported to the Naval Medical Examining Board for the qualifying examination preliminary to being commissioned assistant surgeons.

While, as is perhaps to be expected, breaches of discipline and moral infractions occurred, yet instances of such character were rare, and the student body as a whole commended itself for industry and fidelity to duty.

The instructors, without exception, discharged their duties with most commendable industry and ability.

The Naval Medical School completed its sixth session with the spring term which ended on June 30, 1908, and the report of the officer in command and president of the faculty, Medical Director J. C.

Wise, shows that the work accomplished was in accord with the school's conceded high standing among educational institutions, and that the year was marked by a gratifying advance in the excellence and scope of the curriculum. The bureau has kept in close touch with the character and progress of instruction as well as the general conduct and bearing of those under instruction, and from a careful observation of the appreciative interest manifested by the students and of the results apparent in the after career of those who have had the advantage of the training, the conviction has been reached that the Naval Medical School represents one of the most potent influences for good which the service possesses. Indeed, the growing efficiency of the work of the Medical Department in every direction must be evident to all, and this is certainly due in great part to the school.

The bureau's aim is not only to give a finishing touch to the education of young doctors entering upon a naval career and to prepare them for an intelligent application of their professional attainments, but to broaden their knowledge and practical capabilities to include those peculiar responsibilities which devolve upon the naval surgeon. It is believed that the school accomplishes this end.

The course was, with the exception of slight modifications in the interest of improvement, the same as last year. In addition to the course as conducted by the regular faculty, special lectures have been given by other officers of the navy and by distinguished members of the profession in civil life and in various branches of the government service. The bureau is sincerely appreciative of the widespread and active interest which was shown in the work of the school, as in previous years, and wishes to again acknowledge the benefit of the sympathetic support and gratuitous assistance rendered by all.

It was found impracticable to give the amount of time to the study of meat inspection hitherto allowed. This course was, therefore, limited to lectures by a veterinary surgeon and the president of the school, in which the pathological conditions rendering meat unfit to eat were demonstrated. Inasmuch as the conditions of the naval service rarely require the antimortem inspection of food animals, the system of lectures with illustrations, above mentioned, would seem to fill all requirements, and next year effort will be made, with the cooperation of the Bureau of Animal Industry, to put this course on a definite basis.

The course in operative surgery has been greatly improved by the facilities provided in a "special operating room," completed since the last session, and here members of the class have been given the opportunity to perform under careful, competent tutilage, or witness most of the important surgical procedure.

The course in opthalmology has been taught on a basis of both didactic and clinical instruction. In taking up defects of ocular formation and refraction, special attention was given to visual power and acuity in relation to gunnery, a matter which has received the careful consideration of this and other bureaus during the past year, and which is commented upon at greater length under another section, "Cruising ships," of this report. In taking up the various diseases of the eye illustrative cases were presented, and this method gave most satisfactory results.

Both classes, the senior and junior, regularly attended the lectures given by Doctor White on psychiatry at the Government Hospital for the Insane. A knowledge of this subject is extremely important to medical officers of the navy, as so often they must, on their own responsibility, decide questions of sanity involving (equally) the rights of the Government and the individual.

It is purposed for the pending scholastic year to add to the school curriculum a thorough course on the medical aspect of recruiting. The subject has not been systematically taught in the past, a dependence having been placed upon the officer's medical knowledge, supplemented by the Navy Regulations and instructions concerning the duty and by his familiarity with service requirements. The bureau would always prefer to select from among the older and more experienced officers possessing these qualifications in recommending details for this important duty, but for one reason or another that has been, and no doubt will continue, often impossible, and it is believed that an efficient performance of recruiting duty by the young officers, who may at any time be called upon for such service, will be made more certain by establishing this course.

The title catalogue of the school library is about completed, and from this an authors' catalogue can be readily prepared. This work, though it has extended over a period of three years, has not actually consumed that time, as it has been accomplished by the clerical force of the school at odd moments when not entirely occupied with other duties. New books and periodicals have been and are being added to bring and keep the various sections up to date, so that, with the catalogue just completed, this unique library should be of great use to the school and naval service.

The bacteriological and chemical laboratories of the Naval Medical School continue to serve the useful purpose which was outlined in the bureau's report for 1907, and, aside from the rôle they play in the course of instruction, have now become indispensable to the work of the Medical Department as a whole. During the past year these laboratories, through the studies and experiments of Assistant Surgeon Brown, Pharmacist Noyes, and Hospital Steward King, have given to the service three original and valuable procedures of diagnostic precision; that of the first-named being a more exact method of ascertaining the degree of blood alkalinity than heretofore suggested; that of the second named, a more simple and accurate process for determining the potability of water than heretofore devised; and that of the third named, a more delicate test for detecting the presence of wood alcohol in various fluids. A report, describing the method in detail, was prepared in each case, and all three of them were published in the Naval Medical Bulletin for the information of the service. The practical value of Doctor Brown's work may not be so apparent to the lay reader, but all are sufficiently familiar with the diseases which may lurk in water and the disastrous consequence of imbibing anything which contains wood alcohol to doubt the need and value of reliable tests in these directions as a means to protect the service from such hidden dangers.

The following is a summary of the work done in the chemical laboratory during the period from July 1, 1907, to June 30, 1908:

1. The entire revision and modernizing the book of instructions to accompany the naval test case and microscopical outfit, embodying

the latest laboratory methods practicable on board ship, under the direction of Surgeon E. R. Stitt.

2. The preparation of apparatus, specimens, and solutions required in connection with the courses of instruction and also for use in the examination of candidates for admission and promotion. The time necessary to accomplish this task can not be estimated accurately, but probably exceeds that devoted to instruction.

3. The instruction of two classes in chemistry. There were 130 periods of instruction in chemistry during the last session of the school, the duration of each period given to the students attending the winter term being two and one-half hours and to those attending the spring term three hours.

4. The analysis of 836 specimens of various kinds, the character and number of each being as follows:

Urine	813
Water (sanitary examination)	11
Water (complete analysis)	3
Milk (mother's)	1
Drugs	1
Proprietary remedies	2
Stomach contents	2
Fecal concretions	1
Vesical calculus	1
Concentrated milk	1

The larger number of specimens of urine came from the following sources:

Naval Medical School Hospital	146
Naval Medical Examining Board	166
Board of examiners of medical officers	126
Dispensary (Mills Building)	164
Dispensary (Naval Medical School Hospital)	160
Miscellaneous	51

FACTORS OF EDUCATIONAL IMPORT TO MEDICAL OFFICERS.

The broad question of "Educational opportunities for medical officers throughout their service" was discussed at length in the report for 1907, and in pursuance of the policy expressed in that place every possible consideration has been given to individual needs that have come to notice, and effort has been made to improve and utilize those facilities for general benefit, which are within the control of the bureau, to the best advantage. The professional deprivations, inseparable from sea duty, are clearly understood; the needs of those subjected to such periods of stagnation borne in mind, and every available compensating resource has been employed. But in this, as in other directions, the shortage of the Medical Corps operates to defeat the bureau's aims and admits only their partial realization.

The possibilities for self-improvement which the Medical Department provides through the progressive modernization of the establishments under its charge, and the equipment with which it surrounds its officers, enabling an observance of all the approved methods of advanced practice, have continued to be appreciable factors of educational import. It is observable, also, that the Naval Medical School exerts an influence beyond the confines of its halls, and the limit of those who commence their life in the service under its careful tutilage. The fact is that the indirect association of the whole corps with the work of the school, through an interest in its designed purpose and a practical benefit from the attendant results has had a very apparent effect toward general improvement. And, moreover, the professional enthusiasm which the school instills seems to be imparted to others, with whom the graduate comes in contact, like a contagion, and thus the spirit of endeavor is spread and the best capabilities are brought to the surface.

Postgraduate courses.—Both the winter and spring terms of instruction at the Naval Medical School are appropriately embraced by this term, and in an enumeration of educational advantages take a prominent place. The subject has been discussed elsewhere in this report and need not be further considered here, except to add that the opportunities in the spring course, which was instituted for the benefit of the older officers and those returning from sea, are keenly appreciated and sought. As many of these as could be spared from other duties were ordered in attendance last spring. In addition, two officers were permitted to tarry in Europe for purposes of study while en route to the United States from the Asiatic Station, and many have continued to devote their periods of leave or other leisure time in the study of some special branch. One officer was detailed for study abroad to fit him for certain work and to make certain observations for the information of the Medical Department, and one was given leave for the purpose of going abroad and studying.

Medical associations.—The periodic meetings of medical men bound together in associations are characterized by a spirit of progress and high professional representation, and the benefits accruing from participation in their proceedings are of material value. Most is derived from actual attendance, it is realized, as pointed out in last year's report, for the personal contact with men from various sections of the country and from other parts of the world, with all that that intercourse implies as regards the exchange of ideas and the learning of new methods, is in itself refreshing and broadening, and everything possible has been done for medical officers during the past year in this respect. The list of official designations to represent the Medical Corps of the Navy at the different congresses is not long, for service requirements have been particularly pressing of late, but the bureau is advised that certain members of the corps, stationed in the vicinity of the place of meeting of one or another of the congresses, have attended upon their own initiative, as heretofore. But the benefits of such association meetings are not entirely denied the officer who must remain at his post, for the reports of proceedings, submitted by the official delegates, or such of them as embody important information, have and will continue to be communicated to all medical officers through the medium of the United States Naval Medical Bulletin.

The medical congresses that have been held in this or other countries since the last report, and the medical officers who have been detailed on the recommendation of the bureau to attend as representatives of the Medical Department of the Navy, are as follows:

Association of Military Surgeons, Norfolk, Va., October 15–18, 1907; Medical Directors J. C. Wise and M. H. Simons, U. S. Navy.

General International Sanitary Conference of American Republics, City of Mexico, Mexico, December 2, 1907; Surg. J. D. Gatewood, U. S. Navy.

Conference of the National Legislative Council and Committee on Medical Legislation of the American Medical Association, Chicago, Ill., December 10–13, 1907; Passed Asst. Surg. R. W. Plummer, U. S. Navy.

Fifth annual meeting of the American Society of Tropical Medicine, March 28–31, 1908, Baltimore, Md.: Surg. E. R. Stitt, U. S. Navy.

Fourth annual conference of the Council on Medical Education of the American Medical Association, Chicago, Ill., April 13, 1908; Asst. Surg. A. B. Hayward, U. S. Navy.

Ninth annual meeting of the American Medical Association, Chicago, Ill., June 2–5, 1908; Medical Inspector H. G. Beyer, U. S. Navy.

It is regretted that an officer could not be spared to attend the Pan-American Congress which was held August 6–10, 1908.

Medical periodicals.—The value of current medical literature to those who would keep abreast of the advances in their profession, and conduct their practice along improved lines, is inestimable. They are as indispensable as the medical school and serve as such throughout the active career of a doctor, no matter how remotely situated; chronicling the progress in medical sciences, week by week; giving light where darkness has prevailed; placing new tools in his hands, and guiding in the use of new devices or methods. The importance of these publications as an educational factor is to none more pronounced than to the naval surgeon. The bureau has for many years furnished medical periodicals to medical officers wherever stationed, but the practice has been carried out with, to a certain extent, unavoidable lack of system, and the time came when the supply was manifestly insufficient. During the past year the whole question of supply and distribution was carefully studied, with the result that a more comprehensive list of periodicals was requisitioned, and a definite and systematic scheme for their distribution made. This new scheme will be found briefly outlined under "The Bureau * * *."

In addition to the journals from the public press which are thus being furnished, all hospitals, stations, and ships will receive, as heretofore, the weekly Public Health Report and the bulletins from the Hygienic Laboratory of the Public Health and Marine-Hospital Service of the United States, which that branch of the Treasury Department so liberally furnishes the bureau for distribution. One or two copies of each of certain special foreign or home serial medical publications are subscribed for for the Naval Medical School and the bureau, in order that the corps of instructors may be placed in possession of the latest information from all sources for the purpose of teaching, in the one case, and that the bureau may be in the position to carry out one of the important purposes of the United States Naval Medical Bulletin, in the other case. These special journals are rarely, if ever, seen by the medical officers scattered throughout the service, and it would be impossible, on account of the expense involved, to place them within their reach. As a matter of fact, it would be unprofitable to do so, for, in this progressive age, it is entirely beyond the capabilities of any one man to read all the important medical literature. Yet it is absolutely necessary to keep in touch with every advance, and the bureau therefore undertakes to review the great bulk of original work which is currently reported, and to prepare abstracts for publication in the quarterly Bulletin.

The United States Naval Medical Bulletin has come to occupy a very important place as an educational factor in the navy as well as in a broader field, including other government service and civil practice. Six numbers have been issued, and each one presents a number of valuable contributions to the advance of medical sciences, and of particular interest to the service. The undertaking has involved a great deal of painstaking labor, which the results attained more than compensate, and the publication is not only much appreciated in naval circles, but is in great demand in all sections of the country and abroad. The original articles and case reports submitted by members of the Medical Department for publication have been of a high order, and the medical officers charged with the task of condensing the original productions in special branches from all other sources have conscientiously endeavored to select with discrimination and epitomize the exhibits only of the best work and such as seemed to be of unquestioned value as regards service conditions or requirements. In doing this, the personalities of the authors have wisely not been completely eliminated, but wherever indicated they have commented in editorial fashion and expressed the subject's application to the navy.

This publication has a broad range of utility, for besides the strictly professional information which it bears to every medical officer, and the opportunity for the discussion of medico-naval problems which it offers, it serves as a ready means to communicate with each member of the Medical Corps concerning matters of direct and immediate importance to the service as a whole which may come to light in the Navy Department.

The service of the Bulletin in the interest of the finger-print identification cards is an instance in point. Examination of this part of the immense number of enlisted records being received from all sources showed a large per cent of illegible prints or otherwise defective records. In view of this fact and the importance of securing clear and, in every particular, correct data before the recruits were scattered throughout the service, it seemed imperative that something should be done to prevent the repetition of the common errors. All recruiting stations had been supplied with literature describing the procedure and principles of the operation and, as reported last year, practical instruction was given to those then on that duty, so that, presumably, all were familiar with the requirements and manner of preparing the records. Yet poor records continued to come in, probably owing to frequent changes in the recruiting personnel, and it was necessary to reach every medical officer with a word of caution and a list of common errors to be avoided. This was done through the medium of the January, 1908, issue of the Bulletin, at the request of the office in charge of enlisted personnel, almost immediately following which the number of defective records began to decrease.

HOSPITAL CORPS.

A hospital corps even larger and more effective than has heretofore obtained is now required to meet the demands of the rapidly expanding naval establishments. The unfavorable conditions as regards pay and promotion under which the Hospital Corps has labored have made recruiting for the corps difficult and sluggish. But, looking to the time when this may not be so, the experiences of the last year (when at times, although far short of the required number of men, recruiting for the corps was temporarily suspended because the enlisted force of the navy had reached the limit allowed by law) indicate a serious possibility and demonstrate the urgent need in the future to guard against the recurrence of such a state of affairs as would render it legally impossible to increase the Hospital Corps, should the need and opportunity arise, and thus cause incalculable embarrassment to the Medical Department.

Though the strength of the corps is still insufficient to meet service needs, there has been a gratifying increase over the strength of the corps as reported for the fiscal year 1907.

Table of comparison between the strength of the different rates of the Hospital Corps on July 1, 1907 and 1908.

Ratings.	In service.		Under continuous service.		On first enlistment.	
	1907.	1908.	1907.	1908.	1907.	1908.
Hospital stewards	225	237	79	174	146	63
Hospital apprentices (first class)	252	295	51	60	201	235
Hospital apprentices	324	382	0	0	324	382
Totals	801	914	130	234	671	680

These figures show a general increase in the corps of 113 men over last year, and the number of continuous-service men has increased from 130 to 234. This may, no doubt, be attributed in a large measure to the hope which the department has steadfastly held out to the men of the corps, that ultimate relief from the limitations and restrictions imposed by the law which established the corps would be forthcoming. The expectations were only in part realized by the provisions of the naval appropriation act, approved May 13, 1908, whereby the enlisted men of the Hospital Corps were placed on the same basis as regards pay as men in the line and other staff corps. Under the operation of this law, hospital stewards receive the pay of other chief petty officers under permanent appointments, and all men of the corps receive $5 additional on first reenlistment and $3 for subsequent enlistments. Furthermore, the prescribed bonus for the possession of good-conduct medals and bars, and the recently authorized general increase of 10 per cent in the pay of enlisted men of the navy, are also shared by the members of the Hospital Corps. While this adjustment of pay has done much to make for contentment, and its effect is already apparent in the return of desirable men to the service, it is greatly regretted by the bureau that the additional ratings asked for were not created.

It is a matter not only of justice to the members of the corps, but of material importance to the efficient organization and effective working of the Medical Department that such legislation as was contemplated by the provisions of the bills (H. R. 305 and S. 5034) be again strongly urged before the Sixtieth Congress during its second session. Both failed of enactment at the first session. The bill H. R. 305 is now on the calendar ready to be called up for action by the Committee of the Whole House, having been favorably reported without amendment by the Committee on Naval Affairs. If it passes and becomes a law it will once and for all time place the corps on a basis adequate to service requirements, and give the members the same opportunities for advancement and reward for zeal, ability, and faithfulness which are now open to all others in the navy. To this end the bill in question makes provision for the establishment of intermediate rates, between the existing hospital apprentice, first class (petty officer, third class), and hospital steward (chief petty officer). The establishment of two new ratings to correspond with petty officer, second class, and petty officer, first class, is considered necessary for two important reasons: First, they will afford the means to a gradual promotion, and a consequent more thorough training toward the highest rating; second, they will afford means to retain many experienced all-round nurses, excellently fitted as leading men in hospitals and on board large ships and hospital ships, who by reason of the fact that they do not possess the required fundamental education can not qualify for the rating of hospital steward, and who are now limited by law to the inferior rating of a petty officer, third class. The bill also creates the grade of chief pharmacist. At present there is absolutely no future for the members of the Hospital Corps, beyond the warrant grade, in the line of their special technical training. They must abandon their profession and enter another branch of the service to enjoy the chance of obtaining a commission. As the requirements for enlistment in the corps as hospital apprentice are more exacting than those for apprentice seaman, and the duties of the higher ratings quite as responsible as corresponding ratings in other branches, it is only proper that similar opportunity for advancement should be held out. It is, therefore, strongly recommended that the grade of chief pharmacist be established. The bureau's desires in this respect are not, however, prompted solely by the wish to reward long service, devoid of distinction, and evidence of special ability for work of a higher nature.

The advances in medicine and chemistry in recent years have materially affected the nature, composition, and standards of the purity of drugs and medicinal agents now employed and officially recognized, as evidenced by the radical changes in the eighth revision of the United States Pharmacopœia, and it is essential, therefore, that the professional standard of the corps of pharmacists be elevated and maintained at a high level. This can only be accomplished by demanding of candidates for promotion evidence of thorough proficiency in their profession, and as an inducement for the very best endeavor toward highest attainments in this grade, it is important to hold out to them the possibility of further advancement in the nature of a commission comparable in rank with the chief grade open to warrant officers of the line. Moreover, the creation of such a grade would make it possible to increase the number of this class of responsible, specially trained men, and enable the department to assign a chief pharmacist or pharmacist to each flagship and to fill the vacancies now existing for them at the important shore stations and receiving ships where their services are needed and where their technical knowledge particularly fits them to serve.

Pharmacists.—The allowed strength of the grade is 25; the number in the grade on June 30, 1907, was 24. Of these 1 died, 2 were retired for physical disability, and 4 were examined for promotion (3 qualified and 1 failed professionally). On June 30, 1908, there was one vacancy. The value of the services of members of this grade, and its advance in proficiency as a whole, has been very marked since the average age has been reduced by the promotion of younger and more active men who entertain an enthusiasm for their work. In consequence of this improvement the bureau has been able to more definitely fix the place and duties of the grade in the scheme of organization of the Medical Establishment. It represents the senior position in the Hospital Corps, of which it is an integral part, and it is the desire of the bureau that the duties of its members be such as are not within the proper field of a medical officer, but for which executive ability, a high sense of responsibility, and a thorough knowledge, not only of their profession, but of every detail of the work which attaches to the various ratings in the Hospital Corps, are required. Particularly adapted is this grade to such duties as the supervision of records and correspondence, the management of the commissary department at hospitals, the charge of laboratories as regards their effective equipment and maintenance, the operation of X-ray apparatus, and the supervision of dispensary work—in fine, all those duties which suffer from the effects of interruptions consequent upon rotation of the personnel.

During the year a member of this grade was, upon the invitation of the president of the American Pharmaceutical Association, delegated to represent the navy at the annual meeting of that body in New York in September.

Hospital stewards.—Inasmuch as the hospital stewards of to-day will be the pharmacists of the future, and with a view to the increasing proficiency of the corps, it is necessary that the professional requirements should be steadily raised. With this object in mind, the bureau has given preference to applicants for this rating who are trained druggists, and also desires that the examinations for promotion to acting and permanent appointments be made more and more comprehensive and thorough, so that only men who have demonstrated their professional ability and progressive spirit and who possess the faculty of inspiring men of lower ratings to a proper sense of military obedience and discipline may hold this rating.

Hospital apprentices (first class) and hospital apprentices.—The bureau is pleased to report that the general standard of men recently enlisted in these ratings is higher than ever before, and much promising material is coming into the corps. This is shown by the very small number of desertions from the corps. Of all the hospital-corps men in the fleet in the Pacific there was but one desertion in San Francisco. The bureau's purpose as regards the apprentices is that those who show special aptitude be given every opportunity to develop their talent, and has endeavored to recommend such assignments for duty as will give them and the service the best return. With this object in view, the bureau purposes to improve the character of the present efficiency report on hospital stewards, hospital apprentices (first class), and hospital apprentices, and to enlarge its scope to include not only hospitals but all ships and stations, so that the bureau may be in ready possession of information concerning the ability and special qualifications of every member of the corps and be in the position, consequently, to make assignments with intelligence and greater regard for the particular requirements at the different hospitals and stations of the service.

Recruiting for the corps.—Upon the request of this bureau, made February 5, 1908, the Bureau of Navigation gave its earnest support to a movement to stimulate recruiting for the corps by issuing a special letter on the subject to every recruiting officer and by inserting advertisements in two prominent druggists' periodicals, calling attention to the needs and advantages of the service. A new circular for the information of persons desiring to enlist in the Hospital Corps was also prepared, in which the requirements, pay, and opportunities were set forth in greater detail. These were given wide circulation, copies being sent to the leading colleges of pharmacy and drug journals with a request that they be given publicity, and good results are expected.

HOSPITAL CORPS TRAINING SCHOOL.

In the bureau's report for 1907 the department was advised that this school was about to be transferred from the naval hospital, Norfolk, Va., to Washington, D. C., and that the old Washington Hospital was being refitted for this purpose, though a few patients with minor disorders would still be cared for at that institution. The alterations necessary to convert the spaces not required for strictly hospital purposes into suitable accommodations for the school and its thorough equipment for the work of instruction were completed in September of that year, and on October 1 the school opened with an assembled class consisting of 6 hospital apprentices, first class, and 43 hospital apprentices. This was the fourteenth class since the establishment of a hospital corps training school, and the course of instruction extended over a period of three and a half months. Simple graduation exercises were held on January 14, 1908, and 32 members of the class were awarded the regular certificate of proficiency.

The changes which were made in the building meet the present requirements very satisfactorily as a temporary expedient, and were it not for the shortage of men available for instruction large classes could be handled.

The top floor is divided into two large dormitories, each fitted with iron frames from which hammocks may be swung, for, in order to acquaint the recruits somewhat with the conditions they will find on board ship and to teach them how to lash and care for their own bedding, this manner of sleeping was adopted.

On the main floor there are a lecture hall fitted up with benches, lockers for text-books and blackboards, and a large reading room, used also for demonstrations, containing numerous anatomical charts, a skeleton, and appliances for practical instruction.

A capacious, modernly equipped kitchen and an attractive mess hall, capable of seating 50 to 60 men, are located in the basement.

The very limited ground space about the old hospital at Ninth and E streets SE. precluded any possibility of properly carrying on the open-air drills, but, through the courtesy of the major-general commandant of marines, arrangements were made by which the parade ground at the marine barracks was placed at the disposal of the school, to be used at such hours as would not interfere with the regular routine of that post.

The equipment of the school represents a great improvement over that which obtained at Norfolk, and the present facilities for training are excellent.

A complete dispensary outfit, shelf bottles, mortars, pill tiles, etc., has been installed, and with the next class a more thorough course in practical pharmacy will be given and the men instructed in the compounding of prescriptions, the handling of pharmaceutical preparations, and the simpler forms of chemical analysis as applied to the examination of urine and other excreta.

Moreover, the location of the school in Washington, with its many interesting museums, etc., to occupy the leisure hours of the young men, will prove a great advantage in maintaining discipline and a moral stability. The new system of discipline inaugurated with the last class has been attended by gratifying results. Owing to the location of the institution, there was every opportunity for the men to absent themselves whenever they were so inclined; but during the whole of the session there were only two cases of unauthorized absence.

With the approval of the bureau, a few minor changes were made in the curriculum reported last year. As now given the course covers a period of four months and includes the following subjects:

School routine.

Time.	First month.	Second month.	Third month.	Fourth month.
9 a. m.	Materia medica and pharmacy.	Materia medica and pharmacy.	Signals	Materia medica, pharmacy and toxicology.
10 a. m.	Anatomy and physiology.	Anatomy and physiology.	Surgical nursing.	Anatomy and physiology.
11 a. m.	Nursing	Nursing	Nursing	Nursing.
1 p. m.	Bandaging	Bandaging	Clerical work	Bandaging.
2 p. m.	Hygiene	First aid	First aid	Hygiene and first aid.
3 p. m.	Drill, squad and company.	Drill, litter	First aid, drill.	Drill, litter, litter board, and tent.

Out of school hours a daily military routine continues to be observed. The drills have been of inestimable benefit to the men, teaching them not only all the means of handling wounded and disabled, but instilling into them a military bearing and an energetic promptness and precision in their movements, which are qualities of great value in the performance of their work. Moreover, the physical exercise in class, regularly and systematically conducted, adds greatly to their physical welfare. In addition to this, every form of healthful athletic sport has been encouraged, each class having had either a baseball or a football team, and frequently both.

The fact that all the men in the class could remain long enough to complete the full course was exceedingly gratifying, for nothing so tends to the "esprit de corps" established and the zeal and energy with which the men work as having them complete the full course in a body.

The bureau intends that the training here begun shall be continued in hospitals, on cruising ships, and, particularly, on hospital ships, where a considerable number may at one time come under instruction, not only in the theory and practice of their profession, but also in the many modifications and peculiarities of their work as conducted on board ship. With this purpose in view, recommendation was made for the transfer of practically the entire fourteenth class to the hospital ship *Relief* when that vessel was commissioned.

The many favorable comments made upon the work of the graduates of the school by officers throughout the service has fully justified its existence and prompted the bureau to put forth every effort to utilize its facilities to the utmost.

In view of the fact that of 49 men who composed the fourteenth class 17 failed to obtain the average necessary to entitle them to a certificate of graduation, the bureau has been led to seriously consider a scheme of careful selection of men for the classes. By this means such men only would be given the course as have shown themselves possessed of the requisite intelligence and initiative to profit fully by the instruction and who have demonstrated a devotion to the service which would give the Government fairest promise of return. Moreover, there are in the Hospital Corps, as in every other branch of the service, undesirable men whose influence is often strong and always directly inimical to discipline and study, particularly in a body of boys and young men untrained in military ways and with no clear understanding of the advantages being offered. Such disorganizing elements should of course be excluded. The plan, recently submitted to the department, of having an efficiency report forwarded to this bureau in every case of transfer in the corps will enable the bureau to arrive at a better estimate of the worth of each individual than has heretofore been possible, and selections can then be made in accordance with the policy outlined.

After the graduation of the class in January, unfortunately, all instruction had to be suspended for a period of four months. The shortage of men made it impracticable to withdraw any hospital apprentices from general service to form a new class, and the idea of extending the course to a period of five months has also of necessity been temporarily abandoned.

During the spring active recruiting was again resumed, and a small class, consisting of 25 men, was assembled, and the fifteenth session opened on May 18. This class was still under instruction at the close of the fiscal year.

While the course is necessarily very short, by reason of the need for the services of all available men, it has been fully demonstrated that the curriculum is wisely planned and gives the young men a good foundation on which to build their future studies and further training. With such a limited time as four months, the scheme of training should not embrace inapplicable subjects or more theory than is necessary for a proper understanding of the rationale of sick-room attendance, and the simple object of the training school has been and still is to teach the young men, in a practical manner, what to do in certain emergencies, how to be useful and skillful in attending the sick, and the importance of discipline and order, and to inculcate a sense of pride in doing well the work they are called upon to perform.

DENTISTS FOR THE NAVY.

Again this bureau is under the regrettable necessity of recording the failure of Congress to enact a measure authorizing the employment of skilled dentists for service in the navy. A bill (H. R. 16620 and S. 4261), which had the department's approval and which was identical in every essential detail with those of previous years, was introduced in both Senate and House of Representatives during the first session of the Sixtieth Congress. On the Senate side it was not reported out of committee, but on the House side it was carefully considered by the Committee on Naval Affairs, and reported without amendment and strongly recommended for passage. Had the legislative body been permitted a voice in the matter there seems no reasonable doubt that the measure would have been enacted and relief to our long-felt need in this direction would have been forthcoming. The importance and, at the same time, moderateness of the provision asked could not fail to impress one even upon the most superficial study of the arguments, yet an abundance of supporting evidence was submitted, and it is safe to say that no more meritorious bill than the one in question was listed on the calendar of the Sixtieth Congress. Nor is this the first time that such a measure has found a place on the House Calendar, ready to receive the consideration of the Committee of the Whole House, for similar bills were favorably reported by the Committee on Naval Affairs of the House of Representatives on February 3, 1905, and March 9, 1906. For seven years the Navy Department has recommended legislative authority for the appointment of dental surgeons, and presented irrefutable evidence that the services of such are imperatively required for humanitarian, hygienic, and economic reasons. It is unnecessary here to even briefly review the voluminous testimony which has been prepared year after year by the War and Navy Departments—in the one case, reporting the realized value of dental services, and, in the other, clearly setting forth the need of dental services—and which was so ably compiled in Report No. 1227, which accompanied the bill "Authorizing the appointment of dental surgeons in the navy" (H. R. 16620), when on March 13, 1908, it was committed to the Committee of the Whole House. It will be enough to express the hope that the bill, as it now stands on the Calendar of the Sixtieth Congress, may yet become law, and it is recommended that the department exert renewed effort in its behalf during the pending second session.

While the army is provided against the suffering and the manifold dangers to health and service efficiency which neglected dental diseases entail, and while the public and professional press is busy printing appeals for greater and skilled attention to oral hygiene, the navy is still making shift to meet the requirements of its widely scattered personnel in this vitally important branch of practice with a totally inadequate number of hospital corps men who have had more or less training in dentistry. To be exact, only four such have been available during the past year, and these were assigned to duty at Olongapo, P. I., the naval training station, Norfolk, Va., the navy-yard and naval prison, Boston, Mass., and the naval training station, Newport, R. I. The one at Boston was ultimately taken for duty on the *Relief*. The above enumerated stations constitute but a small minority of those actually in need of dental services, and yet the bureau is helpless to relieve the situation, and even the expedient resorted to in a few instances is unsatisfactory. For the Naval Academy alone does the law make provision for dental service, so that within the naval establishment itself there exists discrimination as regards allowed facilities for the maintenance of health, and even at the Naval Academy the service suffers for want of an additional dentist to properly care for the teeth of midshipmen. It is noted that in the Report of the Board of Visitors to the Naval Academy attention is invited to the fact that "with a roster of over 800 there is only one dentist," and recommendation is made "that at least one more dentist be employed" at that station. It is a natural and reasonable question: Why are the young men of the service at this one place so favored; why are they in any more need of dental supervision than the thousands of others gathered together in large bodies at the various naval stations or scattered over the world and all but entirely dependent upon the safeguards to health and immunities from avoidable suffering with which the Government surrounds them? Sooner or later positive action must be taken by Congress on the question of dentists for the navy, and, the bureau is constrained to believe, the sooner the better.

The dental corps bill contemplated the appointment of 30 dental surgeons. Of this number, 15 would probably be employed at sea—one with each fleet, on receiving ships, and at stations outside of the United States—whose pay would aggregate approximately $25,500 per annum; while the remaining 15 would be assigned to duty at the various shore stations within the United States, including the care of inmates of the naval prisons or prison ships situated at Portsmouth, Boston, Mare Island, and Puget Sound. In addition, the services of a dentist are now required at the naval hospital, Las Animas, Colo., which is isolated, and in view of the character of the disease with which its inmates are suffering and the importance of sound teeth to the successful treatment of that disease (tuberculosis) should be independently equipped to properly care for all physical conditions that might arise among the administrative and patient personnel. The pay of this latter group of 15 would aggregate approximately $21,000 per annum, making the total annual cost of such a corps of trained men $46,500, which is infinitely small in comparison with the inestimable benefit that would result from its authorization and organization.

The amount of dental disease in the navy that requires the skilled attention of dentists has shown an increase during the past year, as far as the work of the four hospital corps men who have been doing this special work is concerned, the report from the *Wabash* for 1907 alone embracing 1,454 operations of almost every character of dental disorder. With the growing naval strength, the existing difficulties in caring for this class of cases must increase.

WOMEN NURSES.

The enactment of authority for the establishment of a corps of female nurses, which was embraced in the naval legislation of the first session, Sixtieth Congress, is a source of great gratification to the bureau, for it is believed that this provision of law immensely enhances the possibility of increased efficiency in the Medical Department and makes for the comfort and welfare of all who come under its care. Yet from this high estimate of the beneficent results which will attend the services of this new corps, it must not be construed that the bureau regards the services of the Hospital Corps as of any less importance and value than it has been in the past. The Hospital Corps, by this innovation, has not lost one iota of its earned prestige, and the plans for its development and improvement will be pushed without interruption.

The sphere of activity of women nurses is of necessity limited in the naval service to hospitals and hospital ships, and when it is considered that far and away the largest part of the naval force will fall under the care of the Hospital Corps the demand for thoroughly well-trained male nurses and sick attendants of assured good character is most evident. The corps of female nurses merely furnishes the Medical Department that additional means for the proper care of the sick and injured which has long been needed without detracting from established organization.

In the wonderful advances made in medical and surgical practice and the closely associated sciences, the nurse has been called upon to play her part and, moreover, by operation of the same detailed requirements of modern standards which call for a greater number of doctors, more nurses are needed nowadays to care for the same number of patients.

For many months, in anticipation of the passage of the bill making this provision, applications for appointment as superintendent, chief nurses, and nurses have been coming in rapidly, and the long list of those from among whom the corps may be recruited includes a large number of women of excellent training and with fine records.

Immediately following the approval of the act "making appropriations for the naval service * * * ", work was begun upon the formulation of regulations for the government of the Nurse Corps, and the preparation of a circular of information for persons desiring to enter it. Although the bureau had given much thought to the matter from every aspect and had drafted an outline of organization, the plans were, and could be, only general and tentative until definite action had been taken by Congress and the exact wording of the law known. The points to be considered in preparing a detailed set of regulations and rules relative to appointment and service in the corps, therefore, required careful study, and this fact, but particularly the need to refer several questions bearing upon pay and allowances to the Auditor for the Navy and Comptroller retarded the completion of the work somewhat, though decisions were obtained without unnecessary delay. These questions of pay and allowances were kindly taken up and pushed to their ultimate solution by the Bureau of Supplies and Accounts.

On May 21, 1908, the bureau addressed the department requesting authority to appoint chief nurses, nurses, and reserve nurses in pursuance of the provisions contained in the naval appropriation act approved May 13, and, in reply, under date of May 25, 1908, the Surgeon-General was "directed to recommend to the department for appointment in each instance the names of eligibles as superintendent of nurses, chief nurses, nurses, and reserve nurses in the Nurse Corps (female) of the United States Navy, * * * ." The Surgeon-General was, in the same letter, "further instructed to submit to the department for approval and issuance in printed form, draft of a circular of information * * *." On July 10, in obedience to this order, the draft of a circular of information, embodying certain regulations, and which, it was believed, covered every considerable point in the premises, was forwarded to the department for its action, and on July 24, 1908, the draft was returned, having been changed in minor particulars by the Judge-Advocate-General, approved as modified, and the bureau was "authorized to finally revise this draft, incorporating therein the modifications above referred to, preliminary to printing the same." This was done and all matter which it seemed important should appear in the final circular was extracted and compiled and forwarded to the department in form to be printed. As soon as this circular is ready for distribution, it will be sent out to all applicants whose requests for information about the Nurse Corps have been accumulating for the past year or more.

In the meantime the bureau had inquired into the eligibility of candidates for the position of superintendent, an appointment to this office constituting a prerequisite to the admission of nurses, and on July 21, 1908, the bureau, as a result of the above investigation, recommended the detail of a board of medical officers to examine Miss E. V. Hasson as to her qualifications for the position. This candidate was selected on account of her long and meritorious record and experience both in civil and military life, including service in the Philippines, the hospital ship *Relief*, and on the Isthmus of Panama. In pursuance to orders the above-mentioned board met on August 3, 1908, and, having concluded the examination and reported the candidate qualified, the bureau, on August 7, 1908, made recommendation to the department that she be appointed. Her appointment was issued on August 18, 1908, and on the following day she reported to the Surgeon-General for duty. Every preliminary arrangement looking to organization and disposition has been made, and now that the rules and regulations have received the department's approval and the superintendent of nurses is in office, the examination of candidates preliminary to appointment as chief nurses and nurses will be commenced in the near future.

The bureau confidently expects that by October 1 a corps of 20 nurses will have been organized, but in selecting these first few and in the subsequent development of the corps it will be the observed policy of the bureau to proceed slowly, while employing every possible measure and precaution to insure efficiency and maintain a high standard of personnel. In this respect the approved rules and regulations promise to be an effective instrument. The bureau purposes that all recruits in the corps, before being distributed to the various hospitals and other stations, shall be ordered to Washington for a period of from four to six months, where, while at the same time rendering practical services at the Naval Medical School Hospital under the guidance of its commanding officer, they will be under the observation of the bureau and superintendent of nurses and will receive such general and special instruction as will familiarize them with the naval service and better fit them to perform their duties in the new environment.

As regards the initial nucleus of 20 nurses, the bureau intends that a certain number, including a chief nurse, will be at once assigned to permanent duty at the Naval Medical School Hospital, and that the others, including a chief nurse, will be placed under instruction for assignment to one of the other large hospitals (New York) as soon as adjusted to military conditions and otherwise prepared to take up practical work in the naval service. And so, as the corps is gradually enlarged, each new group will be assembled in Washington, where they will be critically observed and tutored in the requirements of the naval service, and then ordered wherever they may be needed until all hospitals or other stations have their allotted complement. By this plan the bureau, through the superintendent, will come in personal relation with each nurse as she enters the corps, and will thus be able to acquire a first-hand knowledge of her capabilities and general fitness and judge her adaptability for special assignment. Furthermore, it will thus be made possible to weed out unsuitable or undesirable material in the beginning, and protect the service from unpleasant experiences of one sort or another. Again, it will insure a uniformity in the instruction of nurses at the opening of their careers in the service, and, as that is the critical period, a fair start is eminently desirable. In general, the plan in question is vitally concerned with the efficiency of the corps, and the best interests of all depend upon the utmost advantage being taken of this period. During the remaining term of service, the bureau will aim to inspire the nurses with an ambition to keep abreast with their profession and advance in proficiency by engaging in systematic study, and means to this end will be placed at their disposal.

The hospitals at which it is at present intended female nurses shall be detailed are as follows: Washington, New York, Las Animas, Mare Island, Canacao, Norfolk, Chelsea, Philadelphia, Newport, Annapolis, Puget Sound, Yokohama.

MEDICAL ASSISTANCE AVAILABLE IN EMERGENCY.

This subject was given some attention in last year's report under the head "Naval Militias," when the bureau cited the advantages of a closer relation with the naval militia organizations of the several States and outlined the steps which it had taken toward the establishment of such a relation. The provisions of law, however, were very limited in this direction, and the measures which, it was seen, would be really effective in accomplishing the desired object were not authorized. The opportunity which the Naval Militia offered for creating a reserve of surgeons more or less trained to naval-service conditions for purposes of Medical Department expansion in the event of national need was realized, and it was recommended that legislative authority be sought to extend to the officers of the Naval Militia certain privileges which would serve to inculcate a sense of identity with the navy and develop them along naval lines to a potentiality of greater usefulness should they be called into actual service.

The question of reorganizing the Naval Militia and giving it a legal and national status, it is understood, has received careful consideration in the office of the Assistant Secretary, and a bill (H. R. 7620) was introduced and is still pending before Congress which makes the necessary provisions to this end. In the event of its passage the present Naval Militia in its then reorganized condition would occupy a position in relation to the navy which would be in the nature of a reserve, the medical department of the said organization participating in the changed status. Other than this as a prospect, and the reserve force represented by the American National Red Cross, there is no organized reserve body of medical men available for service in the navy either in war or other emergency. This truth interpreted is of regretable import, for it means that nobody is being trained in or made familiar with the conditions and requirements of naval service, and that there is no individual surgeon or body of surgeons subject to call or that can confidently be relied upon to come to the assistance of the Medical Department of the Navy in case of sudden need. The army should be emulated in the attention it is giving to this broad and important question and in the provisions which they have so successfully obtained at the hands of Congress.

The navy can not safely ignore the need to develop the Naval Militia in its medical branch, as well as others, as an organized reserve force, and every effort to secure proper provisions to this end at the hands of Congress will be well expended. But, however this matter may be regarded by other departments, the Medical Department sees a real need to make preparation for its ready and efficient expansion whenever the occasion arises. The bureau feels that its important duties should not be abandoned to a dependence upon an uncertain personnel, and, in addition to the limited possibilities of expansion which would be represented by the medical department of the militia under the conditions of its proposed reorganization, there should be a "Medical reserve corps of the navy" similar to that provided for the army by the act approved April 23, 1908. The creation of such a corps would not add discernibly to the required annual naval appropriation, but it would add materially to the resources of the Medical Department in the matter of assured efficiency. By such a corps the bureau would find it more feasible to inaugurate that greatly needed change of requiring all applicants for the regular corps to pass through the course of instruction at the Naval Medical School before being eligible for permanent commissions;[a] and by it also the Navy Department would be able to keep in touch with the medical profession throughout the country, and insure adequate and efficient medical services in the navy no matter how great the demand.

It is hoped that the naval militia bill may receive the favorable consideration of the Sixtieth Congress during its second session, and it is the intention of the bureau to submit to the department for approval the draft of a bill providing for a reserve corps.

THE BUREAU—ITS OPERATION AND WORK UNDER REORGANIZED CONDITIONS.

In the bureau's report for 1907 the then recently effected reorganization of its offices and the urgent reasons which had prompted the change were fully set forth. No matter how carefully conceived and promising the plans for reorganization may be, a change in the order of business is always beset with more or less uncertainty as to its working practicability, and it is, therefore, gratifying to be able to report, after a year's experience under the new conditions, the affairs of the bureau to have been conducted with such system that—not only have the increasing routine duties of the Medical Department been discharged with dispatch and thoroughness, but a great many special undertakings of local or general import bearing upon the efficiency of the Medical Department have been or are being brought to completion. It is difficult in words to convey any idea of the immense amount of work that is accomplished by the bureau with its small force, and it would not be apparent to the casual observer, for each division is completely separated, with well-defined duties, and all work progresses quietly and with perfect coordination. All connected with the bureau have been untiring, and both officers and clerks have done much outside work of their own volition. Indeed this extra work has been necessary at times, for the bureau has been concerned with many unusual and absorbing matters during the year which, though intimately associated with the administration and professional efficiency of the medical establishment, could hardly be regarded as strictly routine. The demands upon energy and time incident to the bureau's vital interest in legislation, the problems and detail of work connected with the commissioning of the *Relief*, and the various building operations are a few items of matters of this nature. Then, too, the task of editing, compiling, and preparing reports and professional manuscript for publication each quarter in the United States Naval Medical Bulletin, which was commented on under "Factors of educational import * * *," is, in spite of the serial regularity of its issue, really accessory to the routine and involves a great deal of close and careful work. But there are many other special tasks which have been accomplished during the year and which, though small in title, are of much importance and represent study and application.

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[a] See footnote under Acting Assistant Surgeons, page 14.

The *book of "Instructions for medical officers,"* authorized by the department on February 12, 1908, has been thoroughly revised and brought up to date, both in regard to administrative regulations and professional duties, in connection with the revision of the "Regulations of the government of the United States Navy."

The *Statistical Report, Form K*, has been under revision in accordance with the latest nomenclature in relation to distinct disease conditions as determined by established advances in medical sciences. It has also been modified in minor features to meet changed conditions and to make provision for the recording of certain data which experience has shown to be desirable and in which the form was deficient. While these changes have been drafted, their final adoption will be kept under advisement subject to correction until the existing supply of this form has been exhausted and a reprint is necessary. It is remarkable that this form should have served its purpose with such complete satisfaction for so many years without requiring more than insignificant alterations from time to time, and this fact abundantly bespeaks the thoroughness and foresight with which it was evolved by Surg. J. D. Gatewood from the simple form in use prior to 1895. In this connection, among the other duties with which he is charged, Medical Inspector H. G. Beyer has been directed to submit suggestions relative to the unification of the methods of preparing medical statistics in all navies so that comparison will be possible. This is in direct line with the international movement to unify the nomenclature and classification of diseases, which in this country is being conducted by the general committee of the American Medical Association and the United States Bureau of the Census, with the cooperation of committees appointed by various medical societies throughout the country. But beyond this, Doctor Beyer's work will embrace the method of reporting and the extent of data necessary to make naval medical statistics valuable from a military point of view, and for purposes of intelligible comparison.

The *supply table* has also been extensively revised with a view to conforming to the latest changes and additions to the United States Pharmacopœia, and making the most approved appliances and modern equipment available upon requisition. In this revision particular attention has been paid to increasing the allowance of those supplies that would be required in military emergencies, such as stretchers, surgical dressings, first aid packets, bandages and tourniquets, etc., which have been urged by various medical officers, notably, of late, by Medical Inspector J. C. Byrnes, fleet surgeon, First Division, United States Pacific Fleet, in his several letters accompanying the reports of inspection of ships. As in the past, many suggestions relating to changes in the amount and character of supplies have been received, and while the bureau is glad to adopt any suggestions that prove upon investigation to be of a practical nature and based on necessity or otherwise worthy of consideration, it is necessary that they be submitted with greater definiteness than has been the case in the past.

Revision of the list of medical periodicals and the rearrangement of their distribution.—This subject was touched upon under "Factors of educational import * * * ," and the necessity was there pointed out. The change was in the interest of both economy and educational results, and will unquestionably be productive of greater satisfaction. Briefly, the idea of the revised scheme is to place a number of standard journals within the reach of every medical officer on duty, without unnecessary duplication, while exercising discrimination as to the suitability of those journals devoted to special subjects for certain hospitals and stations, according to location and the diseases likely to be met with, and the extent of dependence placed upon the medical officer by the particular naval and neighboring civil community, and, moreover, to insure that the same station shall receive the same set of publications without variation, so that continuous reference files may be kept. Thus, each hospital, and each station beyond the continental limits of the United States which are more or less isolated, has been entered on the mailing list to be sent the most complete set; for each home station a careful selection of two or three was made; each ship cruising in commission will regularly receive two of the best; and each recuiting station one journal. In anticipation of the inauguration of the plan above outlined, on July 1, 1908, a circular letter was addressed to the hospitals directing the preservation of the journals and that a general index of their contents be kept. At the same time a circular letter was addressed to stations, notifying the medical officers that the custom of sending medical periodicals to each constituent part of the station would be discontinued and that those supplied to the yard dispensary or station or sick quarters must be passed around between the different medical officers and serve the needs of all. Those desiring to read more extensively or consult a large number of journals will find opportunity in the library of the hospital adjacent to the station at which they are serving or where they may happen to be if attached to cruising ships.

Medical records.—Many complaints of the inadequacy of the present system of medical records have been received from officers throughout the service, and various substitutes of more or less merit have been suggested from time to time. The bureau is not out of sympathy with the criticism as it also sees and actually begins to feel the need of some change. The inauguration of some new system of recording medical data has, therefore, been given consideration, and the bureau has been engaged in the preparation of a form along the lines first proposed by Passed Asst. Surg. E. M. Brown and further developed by Surgs. F. M. Furlong and F. L. Pleadwell and others. The bureau assisted in the preparation of the health record sheets embodied in the proposed new service record to be issued in book form, but this represents little more than an extension of the space now designated for the purpose on the present enlistment record, and is not of the scope desired and needed by the Medical Department. Any such radical system as contemplated demands careful study from every aspect, and in relation to its applicability under all circumstances, before it can be considered as completely evolved and ready for adoption, but, it is believed, the change in view will be in the interest of readier adaptability to the varied conditions and requirements of the service; accessibility for reference on board ship, at shore stations and hospitals, and in the bureau; efficiency, in point of complete and always assembled information for diagnostic purposes; and economy of material and of space for filing in the record rooms of the bureau, which is not the least important consideration in face of the rapid growth of the navy and the limited capacity of the storing room. The new system would be in substitution for the bulky medical journal now in use.

The need of a *special efficiency report* on all men in the enlisted rates of the Hospital Corps has long been felt. The efficiency record which has been in use at all hospitals had proven inadequate as regards information furnished, scope of utility, and the meagerness of information contained in the enlistment papers on file in the Bureau of Navigation. Owing to the bureau's dependence upon the latter, it was not in ready possession of a knowledge of the efficiency of any one man, unless he had been on duty in a naval hospital, and even then it was insufficient and only for the period of such assignment. The records were, therefore, not continuous, by reason of the interrupted nature of naval service. Men who had served only at sea had no record of their efficiency or special qualifications on file in this bureau, and as the work of individuals of the Hospital Corps is necessarily specialized it was highly desirable for the bureau to be in a position to know the peculiar ability of each member of the corps in order that recommendations for assignments might be made with intelligence and greater regard for service interests. The old blank was therefore modified in form, and also revised with reference to information called for, in accordance with the more specific data required, and authority was sought to extend the use of the report, beyond its very limited range, to the entire service, so that in every case of transfer, whether from hospital, station, or ship, it would be forwarded through official channels to this bureau for file in the jacket of the hospital corps man concerned. It is a gratification and another step toward increased efficiency of the Medical Department that the request was approved and the form authorized. It is now being printed and will soon be ready for distribution.

Examination report, Hospital Corps.—Owing to the frequent delays in rating men found qualified for promotion to the rating of hospital apprentice, first class, and hospital steward, and the consequent loss of pay rightfully due to the person concerned, a new examination report was formulated and issued to the service. The new form represents a modification of the old in several details, but particularly in respect to a clause, which, when properly filled out, makes a specific recommendation in accordance with the findings of the examining board—either that the candidate be given or not given an appointment in the rating for which he was examined. By this means the commanding officer of the ship or station to which the candidate is attached will be in possession of accurate information to guide him in his action, and, in case of eligibility, the issuance of appointments need not be long delayed.

The *circular for the information of persons desiring to enter the Medical Corps of the United States Navy* was completely revised and brought up to date in accordance with the provisions of the act approved May 13, 1908. It was also enlarged to include certain information, the omission of which in the past was the cause of many inquiries on the part of applicants. It is believed that much of the correspondence involved will now be unnecessary.

The *circular for the information of persons desiring to enlist in the Hospital Corps of the United States Navy* was completely revised, not only for the same reasons which obtained in the above case, but because of regulations governing the appointments and pay of enlisted men in other branches of the navy, and to which enlisted men of the Hospital Corps became subject by virtue of that clause in the act approved May 13, 1908, which placed them on the same basis as regards pay and allowances with other enlisted men of the service. In this connection several questions arose relative to the status of hospital corps men, particularly of hospital stewards serving under permanent appointment, but the difficulties have all been equitably adjusted, and the circular now clearly explains the opportunities under the changed conditions.

The *circular of information for persons desiring to enter the Nurse Corps (female) of the United States Navy*, which was prepared in the bureau at the direction of the department, has been considered under the heading " Women nurses."

Report of operations.—This represents an entirely new form which is required to be sent in at the end of every calendar year, though subject to call at any time, from all hospitals, stations, and ships. The lack of uniformity and important detail with which operations have heretofore been reported, with the attendant difficulty in compiling the records for statistical purposes, and the frequency with which the bureau has experienced an inability to ascertain certain facts without great delay, indicated the need of a comprehensive form which would insure the receipt of like information and such as would be of value from all sources. The form was drafted after careful study and calls for the salient points in each case.

American National Red Cross.—The questions relative to the affiliation of this organization with the navy in the event of war or other emergency were taken up and studied, and a tentative draft of rules and regulations for its assimilation to the personnel of the Medical Department of the United States Navy was prepared. The consideration given this subject was prompted by certain provisions (sec. 3, par. 4) of the law incorporating the organization, and had in view the ultimate suggestion of definite regulations which would expedite, facilitate, and control the cooperation of the American National Red Cross with the navy, in accordance with article 10 of the international Red Cross convention.

The creation of the *Nurse Corps (female) of the United States Navy* adds one more division of distinct work and responsibility to the bureau. The office of this division will probably be located at the Naval Medical School, where the superintendent, who as head of the corps is to be in charge, will be in close touch with and in convenient position to observe the members of her corps for the designated period of instruction succeeding their appointment. Her duties will be: The care of all records, files, and correspondence concerning the corps; general supervision of the corps, including its organization, management, detail of duties, and instruction; and charge of the nurses' home.

Report of medical surveys.—The change in method of forwarding the papers in surveys on personnel (changes in Navy Regulations No. 13, Apr. 29, 1908) is not only a great aid in furthering the business of the bureau, but represents an incalculable economy to the Government. In the authorization of the more direct and logical sequence of official channels through which these reports now pass, the department has effected a rational reduction in correspondence; a greater expedition in completing the papers; and, as a natural consequence, a material curtailment of the period during which the Government must continue the pay and allowances of those who have been determined unfit for service and are therefore a financial burden.

The business of the bureau has also been expedited by the creation of divisions and making the head of each responsible for the routine correspondence relating to its own affairs.

MEDICAL REPRESENTATIVES ON BOARD OF INSPECTION AND GENERAL BOARD.

The department's attention has been invited to this subject for five consecutive years, and it is again earnestly recommended that the Medical Department of the United States Navy be assigned a place on the boards above mentioned. Such practical recognition of the value of authoritative medical counsel would inevitably redound to the best interests of the service. But it is not mere recognition that the bureau seeks—that will come unsought, as merited, according to the degree of opportunity accorded, and it is this very opportunity to be of the utmost usefulness to the service at large in matters concerning health that is desired. The bureau does not ask an experiment. The teachings of medical sciences have become inseparably identified with every undertaking in life. Expert knowledge and advice in hygiene and sanitary problems have long taken an important part in the deliberations of those bodies engaged in guiding the operations and determining the destinies of vastly smaller organizations and organizations representing infinitely smaller responsibilities than the United States Navy. To industrial institutions or engineering enterprises and to all the manifold forms of civil activity, no matter what their magnitude, authoritative opinion, bearing upon physical and mental well-being under the circumstances concerned, is obtained as a plain business precaution of vital moment to economy and ultimate success. Instances in point are too numerous and too familiar to even the least informed or observant to require recitation. Yet, but one—that notable example of the benefits of applied sanitary truths, which is being given to the world in the accumulating record of the Isthmian Canal undertaking; and another, concerning Mediterranean fever, by which the British Government, in particular, is profiting in the tremendous reduction in the incidence of morbidity from that disease among its military and naval forces—these the bureau can not forbear to mention.

The medical profession in all its allied branches stands solidly on an eminence of established and reliable facts, continually being augmented by carefully and scientifically conducted research all over the civilized world, and the degree of importance conceded to the technical counsel of its qualified representatives is destined to increase, in harmony with the spirit of the age and in direct proportion as employers become or, by law, are made liable for disabilities among the employed. The general public is no longer blind to the existence of saving methods of prevention and is demanding their employment where compliance with the dictates of enlightenment is unduly delayed. The admitted necessity of at least maintaining the health of army and navy personnel, from a purely military point of view, is enough to suggest the employment of every available means to that end; but, when the pensionability of the increasing number of those exposed in service is considered, it would seem the Government should insist that no provision which gives promise of strengthening the defense against disease influences is to be disregarded. There is not space to detail the advantages which would accrue to the service by adding an experienced medical officer to the membership of these boards, or to reiterate the arguments in support of the step. These are to be found in previous reports, and have not lost in truth or force by the lapse of time.

The army has given recognition to the principal involved in this contention, largely as a result of sad experience, and its high deliberative bodies are now making appreciative use of the special technical knowledge, represented by the Medical Department, in their studies to evolve a more compact, cooperative, and efficient organization.

The navy should no longer neglect to recognize this additional means of protecting the health of the service and of insuring physical preparedness for any emergency. There is place and need on these boards for an officer who, by virtue of professional training, long experience, and familiarity with service conditions and requirements, is qualified to give valuable advice on the innumerable sanitary and hygienic matters which, in the very nature of things, must enter into problems of naval expansion and questions of general policy.

The bureau appeals for the larger opportunity to be of service to the nation which such representation would offer, and urges favorable and definite action on the foregoing recommendation.

RECRUITING.

In the bureau's report for 1907 stress was laid upon the extreme importance attaching to the examination of applicants for enlistment for general duty, and particularly duty in the few unusually trying branches, such as the Engineer Department and torpedo-boat service. The dangers pointed out, the caution enjoined, and the warning sounded against the inevitable consequences of carelessness or too great haste in performing this duty have, far from losing any of their force, been greatly emphasized by the experiences of the past year, as expressed in the record of medical surveys. The largest number of these, especially those reporting cases as "unfit for service," concern recruits or men of very short service, who entered the navy with disqualifying defects or tendencies, concealed in some cases and in others overlooked. For the fiscal year 1907, 2,275 surveys were reported, while for 1908, 2,711 were reported, a difference of 434, which is the greatest increase in a single year that has been observed since 1899, as a result of the Spanish-American war. This increase in surveys can not be credited to the mere increase in naval strength, per se, but rather, it is believed, to the rapidity with which this increase was acquired and the manner of and provisions for recruiting. The records of enlistments and surveys, and the relation of the period of increase in each, warrant the deduction and support the contention that undue haste in passing upon the acceptability of applicants for enlistment is fraught with consequences seriously wasteful of time, labor, and money. For instance, it has been found, as stated in the introduction, that enlistments began to increase early in the third quarter, showing the greatest activity in recruiting per month during the last quarter of 1907 and first months of 1908, in preparation for the cruise of the Atlantic Fleet to the Pacific. Reports of surveys per month began to increase almost simultaneously—a little later, as would naturally be expected—and then following the decreased activity in recruiting, when the naval force had reached its authorized strength and a more exacting physical standard was required in order to favor slower enlistment, the reports of surveys declined. It would seem a fair conclusion that there is a definite interdependence here, and that the desire for numbers must be controlled in the interest of actually maintaining an evenly high standard of physical fitness for the naval service.

Of course, in spite of all care that may be taken to detect disqualifying conditions, it will happen that persons, by concealment of facts that can only be known to themselves regarding their hereditary tendencies, past diseases, and other circumstances of their physical life, are accepted into the service and in a few weeks or months, under the peculiar surroundings and exposure and exactions of naval life, develop disabling conditions that could not be foretold from the objective examination.

Again, many defectives, who soon become the subjects of medical survey, are passed as a result of the poorly lighted, badly located examining offices at so many of the recruiting stations. Thorough physical examinations are often absolutely impossible, and many examples of the consequences growing out of such inadequate and disarming provisions could be cited. In one instance the medical examiner at a recruiting station failed to detect the presence of a hypertrophied heart, and the condition was only discovered later by the surgeon of the receiving ship to which the recruit was transferred. But when it is considered that in this navy recruiting station (New York) the examinations are conducted in the front room, overlooking the street, and that the incessant noise from the traffic below is so deafening that the ring of the telephone bell frequently becomes inaudible, it is readily appreciated how handicapped the medical officer is in gleaning facts which are learned by percussion and auscultation.

On the other hand, a certain number of medical surveys among recruits may be accounted for, in all probability, by malingering, men found physically fit at recruiting stations simulating defects when they reach receiving and training stations where they find conditions are not as they had imagined. At least, this is a possibility worthy of consideration.

The number of medical surveys contributed from the first and last of these three sources is not large, however, and we must look to the examining surgeon and the character of the material equipment for his work in explanation of the acceptance of so many recruits not physically qualified.

The rôle of recruiting operations in determining the continued health and physical efficiency of the navy must be accorded its rightful recognition as of fundamental importance upon which the structure of the whole establishment is builded. Better far to double or treble recruiting stations and parties in an emergency demand for men than to double or treble the work of existing offices.

But there must be officers for this duty, and here again the need of more medical officers is illustrated and has been felt in practice, for, aside from the difficulty experienced in nominating medical officers with a properly matured understanding of the service requirements for duty at the naval recruiting stations, it has continued to be impossible to detail more than three or four medical officers for duty in connection with recruiting for the Marine Corps, and the physical examinations have had to be conducted, as hitherto, by civilian physicians. This expedient has been and still is unsatisfactory, and the surveys or marine recruits who have been pronounced qualified by these examiners are in large excess, proportionately, to the surveys on naval recruits. In calling attention to this fact there is no disposition to discredit the capabilities of civilian examiners or to make an invidious comparison which will be favorable to the naval examiners. It is merely that the civil examiners do not understand how inflexible the physical requirements must be and how many apparently trifling defects, if not actually disabling, under the exactions of naval service may at any time be taken advantage of as a means to evade duty or become pensionable. Moreover, it may be stated in general terms that a very careful observation and consideration of the reports of medical survey on recently enlisted men in the Marine Corps established the fact to the satisfaction of the bureau that the instructions, as set forth in the circular containing "Extracts from regulations and instructions in relation to the physical examination of recruits for enlistment in the United States Navy and Marine Corps," issued by the bureau, have not been rigidly or properly carried out by the civilian medical examiners for the Marine Corps and that many of the applicants accepted have been remarkably poor physical specimens. The circular referred to was prepared and issued with the express purpose of having a uniform standard of physical requirements for the naval surgeons and civilian medical examiners for the United States Marine Corps and with a view to reducing the number of discharges of recently enlisted men condemned by medical survey, but the bureau regrets that, so far, no apparent reduction of improper enlistments has been observed.

As stated above, a certain percentage of undesirables are perhaps bound to creep in past every examiner, and the medical officers of the service have not been exceptions to such reasonable falability, but, on the whole, they have performed the duty in a very satisfactory manner, and to prepare for the repetition of such emergency as the need to recommend young assistant surgeons for this duty the course at the Naval Medical School on "the medical aspect of recruiting" was determined upon. This will be an important step toward insuring an improvement in the physical fitness of recruits, and it is demonstrable that the Government will reap still further advantages by giving needed attention to the provision of more suitable accommodations at the principal recruiting stations.

The decreasing number of blurred or otherwise defective finger-print records sent in from all stations has been commented upon elsewhere.

BARRACK BUILDINGS, ETC., FOR RECRUITS AND THE CREWS OF SHIPS UNDERGOING EXTENSIVE REPAIRS.

This subject was discussed at length in the bureau's report for 1907. and the facts and arguments there presented being as true if not more true at this time as then, the department's attention is again invited to the pressing need of providing ample modern and sanitary housing facilities for those of the enlisted force who are retained on shore for a period before being assigned to cruising ship, and for those attached to ships undergoing extensive repairs at navy-yards. That large number in the first class who are raw recruits particularly represent the need of more enlightened provisions for their observation and care prior to being distributed throughout the service. The activity in recruiting that was noted in last year's report has continued, being unusually pronounced during the fourth quarter of 1907, and the training stations and receiving ships were almost continually crowded way beyond the point of safety to health and the minimum of decent comfort. The experiences of the past year have been more strikingly in support of this contention than heretofore, and infectious and contagious diseases have been widely spread to stations and ships by reason of the hasty uncontrolled transfers of men, consequent upon the large number of men incessantly pouring in from the recruiting rendezvous—to say nothing of the sanitary and hygienic inefficiency of the provisions at present available. The danger of overcrowding and of neglecting a systematic segregation, by which those recently enlisted may be kept apart from the others and under observation for a proper period, has been frequently pointed out, and corrective measures have been repeatedly recommended. The experiences of the past year are pregnant with somber meaning, and are an added warning that serious consideration must be given to the improvement of receiving and training stations in accordance with the growing requirements of the service and with the sanitary standards of the age, if the navy is to reduce disease in its ranks to the possible minimum by the rules of prophylaxis and in recognition of the principles of economy, and if the navy is to maintain a state of physical preparedness among its personnel by due precaution at the very threshold of the service. Features bearing upon this important matter will be considered under "Naval training stations and receiving ships."

With reference to the sanitary conditions pertaining to cruising ships at navy-yards, the following report by the fleet medical officer, Surg. L. W. Curtis, is pertinent and convincing, and ably supplements the discussion in the report for 1907. Writing on the health and sanitary conditions of the United States Atlantic Fleet for the year ending December 31, 1907, this officer submitted:

> The health of the fleet has been normal except for an outbreak of typhoid fever on the *Connecticut*. The records at hand, which are incomplete, show 78 cases of this disease for the year; 13 of the 16 battle ships reporting cases; 38 of the total having occurred on board the *Connecticut*. This disease, while not of first importance in relation to fleet morbidity, is of special interest and significance in its bearing on ship sanitation at navy-yards. Each ship in the fleet has spent from one to five months at navy-yards undergoing alterations and repairs, and it was following these visits that typhoid appeared. At the four yards visited, namely, Boston, New York, Philadelphia, and Norfolk, general conditions are favorable and, in fact, most inviting for invasions by typhoid as well as all the other maladies (including venereal diseases and alcoholism) that have afflicted the fleet personnel during the year. At all of these yards ships float in water foul with sewerage; yet, generally, or with occasional exceptions, the method employed for cleaning the ships and personnel is the same as when afloat in pure seawater—that is, pumps are operated, crews use the showers for bathing, and ships and crews are put through the daily routine of cleaning with fluid fit only for flushing the ship's sewers. But this is by no means the only respect in which sanitation suffers during these periods spent at navy-yards. At such times the ship loses its distinctive feature as such, and is practically reduced in character to a tenement, a crowded tenement, into which daily enters an army of yard laborers bringing with them no end of dirt and disorder incident to their work. The ship as a habitation then takes on the added features of boiler shop and foundry. The two elements of population crowd and embarrass each other at every point; repair work is impeded on the one hand and all systematic drill and instruction are suspended on the other; personnel and ship lapse into a condition of dirtiness and disorder, and the ship in its character as a home, so far as relates to health and comfort, becomes on a par with that class of tenements generally characterized as "rookeries." The futility of all effort to maintain even the superficial appearance of cleanliness is generally recognized, but the attempt is not abandoned; and as water, however foul, has some detergent quality its routine use is persisted in, supplemented, it is true, by a modicum of fresh water from the yard hydrants. That provision has not long ago been made for the exclusive and free use of hydrant water for all and every purpose on board ships at navy-yards, with crews on board, except flushing water-closets and heads, has been in flagrant disregard of elemental principles of hygienic rule and regulation. The supply of a sufficient quantity of clean water with proper facilities for use as baths and arrangements for scrubbing clothes and bedding are fundamental sanitary necessities at these times, as at all other; the amount having a direct bearing on the health of the personnel through its relation to personal cleanliness, and the quality in its relation as a medium for the introduction of disease-producing organisms.
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> To what extent health and general physical efficiency suffers from the various causes referred to is not sufficiently appreciated. All know that at these times the sick list grows, that the wards of our general hospitals are chiefly recruited, and infectious and contagious diseases are most rife. But it is not understood as it should be, that none escapes some impairment of health at these times. At these periods, too, venereal exposure is greatest and alcoholic excesses most indulged in; as, there being little employment on board ship for the enlisted men, liberty is freely given, and with no resources for pastime and entertainment other than the city affords, the saloon and brothel become, more than usual, agencies in depleting health. It would be difficult, indeed, in my opinion, to exaggerate the adverse influences affecting physical efficiency throughout the fleet, not to mention the squalid discomfort incident to these visits, amounting to one-fourth of the year in the aggregate. No phase of the service within my experience or knowledge is fraught with so many influences harmful to health. The daily sick list does not adequately show this, but represents only those temporarily or permanently disabled; and it is within bounds to say that for each man borne on the sick list as many as six report for treatment daily for ailments that do not require their admission to the sick list. The best index is the slackness and lack of smartness shown throughout the ship's company, and I believe executive officers will agree that a good deal of this spirit, or lack of spirit, attends and follows these visits to navy-yards. To what extent discipline suffers by reason of liquor smuggled

on board by yard employees, and through other incidental agencies, is chiefly within the cognizance of commanding and executive officers.

As a rule, ships leave the yards with disease infection that always threatens epidemic extension; cases of typhoid, erysipelas, scarlet fever, diphtheria, and the like are on board as constant morbid elements following these visits; and the assumption that they are other than the fruits of our own sanitary shortcomings is wholly untenable and would not stand before the scrutiny of the board of health of the cities adjacent to which our principal navy-yards are located.

The bearing of this matter on desertion, also, merits consideration, for there is no denying that influences that impair the sense of physical comfort and well-being are prejudicial to contentment, and it well may be that desertions, which are, I believe, most numerous at these times, are to some extent the result of these influences.

If the case as here stated is substantially correct, as it is believed to be, then it becomes obvious that there is urgent need of reform in this matter. In order that any suspicion there may be in any quarter that the evils depicted have been exaggerated, it is respectfully requested that a mixed board of line and staff officers be ordered to investigate and determine whether or not such is the case.

The necessity of maintaining the mechanism of the fleet in the highest state of efficiency through alteration and repair is evident, as shown by routine visits to navy-yards where on an average three months of each year are spent; but it has not been officially recognized, as yet, that this routine under the present system entails incidentally a very extensive impairment of efficiency in the fleet personnel. It should not be that, while the ships are undergoing betterment, the crews should be lapsing in physical and professional fitness and efficiency, as is certainly the case under the present system of keeping the crews on board. These periods spent at navy-yards are very properly times of respite and relaxation from the arduous and monotonous duties incident to service at sea; but they could, and well might, be made profitable in promoting physical well-being, contentment, and satisfaction with the service which at best proves too often to be essentially lacking in these elements for many enlisted men, as is shown by the large number of desertions.

As the ships at these times pass into the hands of the yard personnel for all practical purposes, and serve the crews for housing only—housing of a kind devoid of all common comfort and conveniences that pertain ordinarily even to a ship—it would seem to be in the interests of the service to provide other quarters for the crew at such times.

The opinion is therefore respectfully submitted that at each of the "home yards" of the individual ships of the fleet home quarters should be provided for their crews; that is, barrack buildings possessing every essential of comfortable and sanitary construction, with ample grounds for drill exercises and athletic sports, and with such adjuncts as reading room, gymnasium, canteen, etc., so that when vessels make their annual visits for repairs the men will be able to enjoy an agreeable change from the close and irksome environment of the ship (at these times, more than ever, felt to be such), and in this change find a feature of the service of added attraction and therein increased inducements to remain in the navy and the foundation for a permanent attachment to the service. It would, of course, be necessary to keep a detail on board at such times, but that is incidental. At New York and Boston it would be necessary to locate these home quarters elsewhere than in the yard on account of lack of room and suitable environment. But there should be no difficulty in this respect at Norfolk and Philadelphia, where there is probably ample room within the yard limits. At Boston the extensive lands belonging to the hospital might profitably be utilized for this purpose. This scheme would also enable the ship to be put through a thorough cleaning and sanitary renovation before reembarking the crew, whereby disease germs and vermin would be destroyed and the ship as a habitation would enjoy the benefits of an annual "house cleaning," such as common experience has proved to be so essential in the maintenance of health in habitations on shore, and which is not possible with the crew on board.

It is hoped that this matter (which has been dealt with more or less fully in several former sanitary reports) will be regarded as worthy of consideration and investigation, as it is firmly believed the reform herein recommended would be of great practical benefit to the service.

In forwarding this report Rear-Admiral R. D. Evans made this indorsement, dated March 10, 1908:

* * * * * * *

2. I heartily approve of every word in this important report, and in forwarding it desire to call the special attention of the Bureau of Navigation and of the department to its contents.

3. To my own personal knowledge the picture of existing conditions set forth herein is not in the slightest degree overdrawn.

4. The question of providing barracks is one that is, of course, dependent upon Congress, and therefore can not be immediately solved, but the following points suggested herein can, and in my opinion should, be immediately carried out:

(*a*) Absolutely forbid the use of harbor water aboard ships at navy-yards, except for flushing closets, and allow free use of fresh water from hydrants for all other purposes. Any motives of economy that restrict such use of fresh water result in the physical degeneration of the personnel, and therefore should not be considered for a moment.

(*b*) The board recommended on page 4 should be immediately ordered, and prompt and strong action taken on its recommendation.

5. To my mind there is to-day no more pernicious and baneful influence acting on the health and morals of the men of the navy than that which results from the visits of ships to navy-yards under the existing conditions as set forth in this report, and in no place is there more room for improvement of the conditions surrounding the personnel than in this particular question.

The bureau has held the opinions expressed above for a number of years and has urged the reforms indicated. The situation can not be put more forcibly than has been done here and in previous reports, and it is again most earnestly recommended that an appropriation be asked for the purpose in question, and that, pending congressional action, every possible measure within the department's independent power to ameliorate the existing conditions be employed.

SPECIAL RELIEF WORK.

The Medical Department stands ready at all times to assist in rendering such relief, personal and material, as may be necessary in civil communities abroad or at home which have been visited by catastrophies of whatever character or magnitude. The record of the past includes a long list of such services, and the manner in which they have been performed, from every view point, reflects credit upon the naval establishment.

During the period embraced by this report two devastating disasters in widely separated parts of the country have offered occasion for our cooperation with other branches of the government service and national and local organizations in the relief of suffering and distress among the inhabitants of the afflicted regions.

At 11 a. m. on Sunday, April 12, 1908, a fire broke out at Chelsea, Mass., and, owing to the strong wind which prevailed at the time and the highly inflammable structures in its path, it spread rapidly, burning over a large area (360 acres), and leaving thousands of people homeless and dependent, without food, shelter, or clothing. From the manner of its spread, it was early realized by Medical Inspector H. E. Ames, in command of the naval hospital at Chelsea, Mass., that relief of all sorts would soon be demanded, and necessary steps were at once taken and preparations quickly made to render any and every aid possible at the naval hospital and in the burning city.

In his special report upon the relief work which was carried on at this time, Doctor Ames showed that much good work was accomplished. In substance the report ran as follows:

> The complete shutting off of the electricity, gas, and also telephone connections greatly embarrassed the situation. Rear-Admiral Swift, the commandant of the station, was, however, communicated with and a hurried but systematic plan of procedure was verbally outlined. Lamps, lanterns, and candles were secured from the navy-yard and extra rations were obtained from the receiving ship; temporary candle stands were made from blocks of wood; all spare mattresses were broken out, and the patients in the hospital were concentrated in one part of the building; the other portions of the hospital were divided up into sections for the reception of injured males and females, separate places for the segregation of the two sexes among those who were destitute, and a place for children. The culinary department was immediately put in operation and soup, coffee, tea, bread, and meat were prepared for those requiring nourishment. Milk was secured for the small children.
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> Doctor Toulon was directed to go to police headquarters and inform the authorities that we were ready and anxious to give all assistance in our power; that our ambulance and hospital corps were organized, and to ask them to send any sick or injured or otherwise needy to us. Surgeons Edgar and Wilson came up from the yard and assisted us in the work at the hospital.
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> Doctor Toulon, with Hospital Steward Barton, who was on leave at the time, Hospital Apprentice (First Class) Ross, also on leave, and Hospital Apprentices Hewes and Norton, of our force, worked at police headquarters and rendered valuable assistance to the wounded who were brought into the relief station there. Numerous calls for medical supplies, such as guaze, bandages, boric and picric acids, etc., were made on us, and in every instance the requisition was filled. Rations, consisting of meat, bread, eggs, and milk, were also sent to the station house to meet pressing needs, and these were taken in charge by the associated charities of Boston.
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> The chaotic state of affairs and the confused and dazed condition of the municipal authorities made it difficult to secure an orderly cooperation, and the organization of a united and harmonious management was almost impossible until the fire was under control. The raging, spreading fire exhausted police and firemen; blocked thoroughfares; distracted and dazed inhabitants of the stricken district; appeals on every side for protection of household goods and aid for sufferers; and the frantic quest for lost children or parents, all increased the impediment to communication, and the destruction of the city hall, together with that of the churches which are natural centers for organization to which the people turn, produced further confusion. Many vain efforts and much futile work was done, as is always the case in such terrible emergencies.
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> The next day, Monday, I visited the city to try and institute some method in the work of relief, but was unable to obtain definite knowledge concerning existing needs or facilities, as committees were only then being formed. However, I distributed slips, bearing the naval hospital stamp, which would secure relief, food, shelter, and treatment at the hospital, and at the same time verbally assured them that we were ready and anxious to render any and every aid in our power. These slips, with a similar statement, were also left at police headquarters, with the Lincoln Hall committee, and the Carey High School central committee. All applicants were received and their various troubles given careful attention.
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> On Monday the central committee began the distribution of clothing. In the beginning disorder prevailed, all the clothes having been thrown into one room—outside garments and underwear, for male and female, adult, juvenile, and infant—in a confused mass. On Monday night, Miss Marguerite E. Ames, with the help of eight men and Mrs. Renari, from the hospital, worked until 10.30 sorting out and classifying these garments. The work was laborious, but the result excellent, making it possible to carry on the work of distribution in a systematic and expeditious manner.
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> The following table is a graphic statement of the work done. The information and advice which was given in answer to the numerous inquiries, as well as other little attentions, can not be enumerated, yet the mere mention of them only faintly describes the amount of labor these apparently small items involved.
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> I state with pleasure and professional satisfaction that the united, unremitting, and cheerful manner with which the work was carried on by the Hospital Corps of the service stationed here was most commendable, and the assistance

that was rendered by every one in the hospital, both convalescent patients and civil employees, was no less so. Hospital Steward White, of the navy-yard, reported from his home and offered assistance on Sunday night.

Victims of the Chelsea fire who were treated, fed, and sheltered at the naval hospital, Chelsea, Mass., from 12 m., April 12, to 12 m., April 16:

Men	95
Women	27
Children	34
Medical and surgical cases	48

In commenting upon the work reported the commandant of the station expressed his high appreciation of the services rendered by Medical Inspector Ames and those rendered by other medical officers and the members of the Hospital Corps in connection with the fire at Chelsea, and he concluded his indorsement with these words:

> In the confusion which existed during Sunday, Monday, and Tuesday the personal efforts, the judgment, and the administrative capacity of Medical Inspector Ames were most important in relieving existing conditions and in suggesting methods to the authorities of Chelsea, who found themselves confronted with a situation entirely outside of their training and experience.

On Friday, April 25, 1908, a cyclone of great violence swept across several of the Southern States and did great damage throughout a district some 50 miles long and about 1 mile wide, Purvis, Miss., and its vicinity suffering most from its destructive force, having been practically devastated. Besides the large number who were thus left destitute and homeless, many were injured and otherwise in need of medical assistance. On April 27 Passed Asst. Surg. N. T. McLean was ordered to proceed to the scene of the disaster and report for service in connection with the relief work which was being instituted in the stricken district, and on the same date Asst. Surg. H. R. Hermesch was given similar orders. In the absence of definite information as to material needs, authority was given these officers to take with them such supplies as they deemed necessary from those on hand and, upon arrival at the scene of the disaster, to telegraph if additional medical supplies were needed. The bureau, however, was not called upon to furnish other material relief, nor did it become necessary to detail more medical officers, as the American National Red Cross, at the request of the relief committee, soon took charge and was able to meet all demands. On May 3 Doctors McLean and Hermesch, whose assistance was no longer required, requested instructions and were directed to return to their respective stations and resume their regular duties.

During the few days that these two officers were on the ground they worked untiringly in active cooperation with officers of the army and the state authorities and the various members of the medical profession resident in or near the district. Their energies were directed not only in professional channels, but toward effecting organization and accumulating data, and the services which they performed were not only most creditable, but of great benefit to the community and value to those who subsequently took charge of and carried on the relief work.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The allotment of $2,000 to this bureau out of the "Appropriation for International Congress on Tuberculosis at Washington, D. C."

was utilized in a way that will show to the best advantage the active part being played by the United States Navy in the world-wide campaign against that dread disease, for a discussion of which in its various aspects and the problems inseparable from it the distinguished representatives of different nations have gathered. The naval hospital at Las Animas, Colo., is both the insignia of the navy's association with antitubercular interests and the tangible evidence of its earnest work in that direction, and it seemed, therefore, most appropriate that this young and growing institution, together with its records of creditable accomplishments during the brief period of its existence, should be displayed before the congress as completely as possible. In conformity with this idea, a model of the sanatorium in its final development as at present planned was executed under the direction of the bureau and safely installed in the hall of exhibits. Large photographs of the reservation and the establishment as it stands to-day, with comprehensive descriptive legends, were especially prepared and hung about on the walls of the assigned space. Reprints of articles which narrate the history of the reservation and of the bureau's efforts to establish a sanitorium for the tubercular sick of the navy; which relate the progress in its material development up to date; which outline the proposed further development, and which discuss tuberculosis from the naval point of view were placed near the model for distribution among the members of the congress. Reprints of Surg. B. L. Wright's two papers on the treatment of tuberculosis by mercury, as published in the United States Naval Medical Bulletin (vol. 2. Nos. 2 and 3), and reprints of a later article on the same subject, as published in the New York Medical Journal of August 29, 1908, were also placed at the disposal of the members. Doctor Wright was ordered on from the naval hospital, Las Animas, Colo., for temporary additional duty and detailed to attend the congress as one of the delegates representing the Medical Department of the United States Navy, and he presented a paper which reviewed his observations on and experience with the mercurial treatment of tuberculosis, and which drew some very strong, if, indeed, not convincing, conclusions concerning the benefits of this method of treatment.

Medical Inspector H. G. Beyer was actively associated with the preparations for the congress as chairman of the committee on exhibitions, and his work in the interest of its success reflects great credit upon himself and upon the naval service. The bureau nominated this officer to open the discussion on a paper to be read by Oberstabsarzt Doctor Kirsch, of Berlin, entitled "Die Tuberkulose und ihre Bekämpfung in der deutschen Marine und in den deutschen Schutzgebieten." (Translation: "The campaign against tuberculosis in the German navy and military posts.")

The Medical Department, upon invitation from Medical Inspector H. G. Beyer, established a temporary dispensary service in the hall of exhibits for the emergency care of such of the visitors as might be in need of medical attention.

SPECIAL DISEASES.

There were certain diseases of the infectious class which were prominent in the notice of the bureau during the past year, and though these were not necessarily the most prevalent among all causes of disability their serious nature as regards the degree of disability which they inflict and the menace to health and service efficiency which their epidemic tendencies constitute entitle them to more than passing notice.

Tuberculosis.—This disease in its relation to the navy was discussed at length in the report for 1907. During the past year the morbidity rate per 1,000 has slightly increased, but this increase is of no particular import beyond the points already offered for consideration, as it may be very reasonably regarded as evidence that the reform toward greater accuracy in diagnosing the disease in the navy, as elsewhere, is still going on, and a comparison of the figures from year to year shows an apparent increase. Conditions of life in the service on board ship have not changed in a year, and the only possible sources of actual increase are the rapidity of recruiting, commented upon in a previous section, and the greater length of cruises, without accessible hospital facilities, which operate to keep cases of the disease on board ship for a more or less extended period, to the hazard of the rest of the crew. The bureau again urges official recognition of the insidious danger of this disease in the navy, and that every measure antagonistic to its development and dissemination be employed. The principles of prevention and the economy it represents have particular significance in relation to this disease. All other problems of a medical character sink into insignificance beside it. On the other hand, those afflicted with tuberculosis are being offered greater hope of recovery by the progress in methods of treatment. In this respect the naval hospital, Las Animas, Colo., has had notable success, and the record of its accomplishments with the mercurial treatment deserves brief comment.

No case has suffered the slightest injury from the drug, and in over 85 per cent of all cases so treated improvement has taken place. In most of these the improvement was decidedly marked not only in the general condition but the reduction in the area of pulmonary involvement and the subsidence or entire disappearance of the disease in other organs and tissues.

During the first quarter, ending March 31, 1908, the death rate of Las Animas was 11.29 per cent. During the following quarter, ending June 30, the death rate was 4.76 per cent. This represents a reduction of 42 per cent in the death rate and is most significant, particularly when compared with the death rate of the next quarter, ending September 30, in which but one death occurred out of a daily average of 105 patients—less than 1 per cent, or a reduction in the death rate over the preceding quarter of 60 per cent and over that of the quarter ending March 31 of 83.1 per cent. This progressive decline of the mortality percentage over a period of nine months would seem to eliminate any question of accident, and furnished striking evidence in support of the asserted antitubercular properties of mercury. The results expressed in the above figures are sufficiently noteworthy without further remark, but they appear much more significant when it is taken into account that upon admission over 60 per cent of the cases were far advanced in the disease, and that in many there were grave secondary involvements complicating the serious pulmonary lesions. And, moreover, during the past five months all the deaths, with but one exception, have occurred in patients who had been in hospital less than two months, and autopsoy in all cases revealed not only extreme pulmonary involvement but secondary ulcerative tuberculosis of the intestinal tract and larynx and tubercular involvement of many other internal organs.

Typhoid fever.—The persistence of this disease as an annually recurring problem in the navy is largely due, it is believed, to a greater or less ignorance—not so much, of the fact that the dejecta of typhoid-fever patients contain the infective agent, but of the manifold ways by which the specific organism may be conveyed from the sick or even long convalescent to the well. In this connection recent observations have conclusively demonstrated that cases cured of the disease in its active form may harbor and incessantly discharge numbers of the typhoid germ in their excretions for years, unless special post-typhoidal treatment for their speedy elimination is properly carried out, and while excreting that specific organism such typhoid bearers are a menace to their associates. This lurking, treacherous disease claimed about the same number of victims per 1,000 of naval force in 1907 as in 1906, and Surg. L. W. Curtis has pointed out, in his report published under "Barrack buildings," etc., an important factor in its epidemiology among the force afloat.

The application of general sanitary principles in the prevention of this disease, such as the purification of drinkng and utility water and the protection of foodstuffs from contamination by flies and other intermediary agents, have played a certain undefined part in the reduction of the disease, but they are measures which do not attack the root of the evil; they are but imperfect barriers, and until the campaign in prophylaxis is carried to the ultimate source of infection—the focus of typhoid production, as represented by the "typhoid carrier," complete success can not be attained. In its report for 1907 the bureau discussed the imminent danger of more or less direct contact infection on board ship, and recently, in words somewhat similar to the above, Medical Inspector H. G. Beyer, U. S. Navy, strongly emphasized the prime importance of bacilli bearers in the dissemination of typhoid, and the need to search out and isolate such persons from the possibility of menacing the health of the communities in which they live. This source of infection would seem to have a particularly favorable sphere of activity on the ships of the navy, where the associations of life are so peculiarly close and intimate, and where in spite of the daily scrubbings and the weekly field day there are so many opportunities to pass the bacillus of typhoid fever from one to another. Experience has demonstrated that the naval personnel even on shipboard is not entirely safe from food and water borne infection, nor are insect carriers to be regarded as inoperative causative agents on our ships. These intermediaries, especially the former, have been presented in their true relation to the naval service by Surg. L. W. Curtis, U. S. Navy. Medical Inspector Howard E. Ames, U. S. Navy, has further clearly pointed out that the men are in extreme danger of acquiring infection when allowed to go in swimming on the sides of the ships on which the flush from the heads is ejected, or when in port at any other period of the tide than flood. But these are the obvious channels of infection to be guarded against, and the indicated precautionary measures should be instituted and rigorously observed. The more subtle and, therefore, if for no other reason, more threatening channel, which has come to light by the later-day knowledge of the period of infection and the positive demonstration that healthy persons are capable of carrying virulent typhoid bacilli, is man to man infection, and when the origin of a case which has developed on board ship can not be definitely traced to some extraneous source, the question of the presence of a bacillus carrier among the crew should be diligently investigated by laboratory methods, and suspicious persons segregated pending the final determination. Moreover, the utmost care should be observed in handling a patient so that the attendants by their contacts incident to his proper treatment and the disposal of his excretions may not be the means of communicating the disease to others during the retention of the case on board.

Again, with the growing appreciation of the importance of actual contact as a means of spreading typhoid, it is necessary that constant atention be given to the decks and seats of the wash-down closets in the heads of ships. The force of the flushing stream and the drop of excreta occasion a splash, and the water flies up in all directions against the under surface of the seat and through the central aperture on to the deck, which represents a condition fraught with danger unless daily cleaning with disinfectants is practiced. In this connection the fitting of all troughs with common metal covers so that they may be periodically closed down and disinfected with live steam might be a valuable provision. On one occasion the necessary disinfection for a cause other than typhoid was accomplished by building a fire in one of the troughs.

No case should be returned to duty until it has been determined by repeated examinations that his urine and feces are free from the specific organism, and to this end the post-typhoidal treatment, which now seems fully established as speedily effective, should be routinely carried out. Efforts to prepare an immunizing sera have not, thus far, been entirely successful, so that in protecting the health of the navy against this disease dependence must be placed entirely upon measures to prevent invasion.

Epidemic catarrh (*grippe*).—This disease was of second importance in point of prevalence during the past year, a fact which occasions no surprise. Its extreme communicability and rapid spread under ordinary conditions and circumstances of life on shore are well known, and the conditions of ship life, therefore, are most favorable to its epidemic tendency. The force afloat contributed 1,203 cases against 531 cases contributed by shore stations and hospitals, and the morbidity per 1,000 due to this disease for 1907 is greatly in excess of that for 1906—a difference by no means accounted for by the increase in the whole naval force, but more likely to the increase in the strength of the force afloat, for in 1906 this division of the naval personnel furnished but 756 cases of epidemic catarrh, while in 1907 it furnished, as above stated, 1,203 cases. Moreover, the period during which the various ships have been at navy-yards undergoing repairs has been favorable to its development. In this connection Surg. A. G. Grunwell in his report on the *Kentucky*, writes in the same vein as Surg. L. W. Curtis.

There seems no way to materially prevent its invasion or check its epidemic progress. Fortunately it is not often a serious malady in itself, but its complications and sequelæ are frequently of such gravity that health, if not life, is threatened, and it represents a considerable loss in sick days (8,050) to the service. What little there is to do in prophylaxis should be availed of. The isolation of cases, plenty of exercise in the open air and sun, efficient ventilation, and the avoidance of over inhabiting the living spaces, etc., are all excellent in direct means of defense, but the Gates sanitary scuttle-butt attachment and, where this has not been installed, the disinfection of the common drinking cup, aim at preventing a more direct transmission of the infection. The common drinking cup has shown itself to be a very important medium for the dissemination of this and other diseases, but it is mentioned here because it is one of the few tangible and vulnerable agents in the epidemiology of grippe. Surg. M. F. Gates reports an extensive epidemic of the disease which was only controlled by isolation and radical methods of disinfection.

Epidemic parotitis (*mumps*).—This is another disease which is common in the navy on board ship and at the large training stations ashore. The records show an increase over last year, though not greater than might be accounted for by the growth of the navy. In 1906 the force afloat contributed 365 cases, and shore stations and hospitals 269 cases; while in 1907 the number of cases were, respectively, 351 and 311, with a total of 10,681 sick days. Almost every ship reported cases, notably the *Cleveland*, *St. Louis*, *Tennessee*, and *Minnesota*, which had 17, 27, 31, and 47 cases, respectively. Though it is a disease of no great consequence as regards degree of invalidism, it entails a considerable loss in services, and often occasions much inconvenience in carrying on the work of the navy. Mumps, in its relation to the navy, has been briefly commented upon here because of its points of similarity to grippe in epidemiology and applicable prophylaxis. Like grippe, it is readily communicable by close association and such intermediaries as the common drinking cup. Its increase in the navy is to be accounted for by the decrease in the average age of recruits, and the more limited, sluggish, and more controllable character of its epidemic extension is to be accounted for in part by the greater length of its period of invasion and the immunity conferred upon the affected side by one attack. Coupled with other general preventive measures, the sterilization of the drinking cup or the Gates sanitary scuttle-butt attachment is of great value in checking this disease. The Gates device, or the expedient in lieu of it, is a potent factor also in the defense against invasion of diphtheria and cerebro-spinal meningitis.

Diphtheria.—This is a disease of which we have heard considerable this year from ships and stations, and, while antitoxin has robbed it of much of its power to become widely epidemic and to destroy life, its appearance is always a signal of alarm to the community affected and a source of anxiety to those upon whom the responsibility of controlling the situation rests. This is particularly the case at sea for many obvious reasons, not the least among which may be a ship's isolation from the possibility of obtaining the serum, and it is difficult and expensive to keep ships supplied with fresh serum against a possible emergency. This was done, however, as one of the many special measures in the preparation of the medical departments of ships for the cruise of the Atlantic Fleet. Four ships reported cases, but on only one, the *Nebraska*, was the invasion at all noteworthy and proved beyond the capacity of the ship's provisions to care for an infectious disease. In this connection it is to be noted that the isolation compartment of ships is small, and while in the matter of bunks is fitted to accommodate from 2 to 4 patients, cases with different infectious or contagious diseases manifestly can not be quarantined together. Great credence is not given to the asserted ubiquity of the diphtheria bacillus and the possible presence of healthy diphtheria bearers in the same degree as relates to typhoid fever, but convalescents do harbor the bacillus in virulent form for several weeks, and it is not only important to isolate a case early and completely, but to continue such isolation until the specific organism has been proved, by repeated examinations, to have disappeared from the secretions of nose and throat. The disease does gain entrance from outside sources, and sporadic cases have repeatedly appeared at the training stations and elsewhere throughout the service. The mild epidemic which occurred at the United States Marine Barracks and United States Naval Academy, Annapolis, Md., between December 2, 1907, and January 6, 1908, threatened to become quite extensive, and required prompt action and radical measures to stamp it out. Detailed reports were submitted by Passed Assist. Surgs. E. M. Blackwell and R. E. Riggs and transmitted by Surg. F. S. Nash, senior medical officer of the station, through official channels.

Cerebro-spinal meningitis.—This is another disease which commands the attention of all in the service, not alone because the cases during 1907 were nearly double the number of cases in 1906, but because of the suffering it inflicts, the attending high mortality, the terrible after effects among those who survive, and the menace to the health of the navy in its tremendous increase of recent years all over the world. It has been imported by recruits from many sections of the country, a source which will in all probability continue active, and this fact, together with its recognized predilection for those depressed in mind and body, particularly under conditions of poor ventilation and crowded living spaces, should be sufficient warning to the navy that proper sanitary provisions must be provided and protective measures must be carefully observed. In this connection Surg. G. T. Smith, U. S. Navy, in his report on the *Maryland*, writes:

> Two cases of cerebro-spinal fever developed on board while making passage from Hongkong to Manila in January. This was plainly due to the absence of ventilation on the gun deck within the armor belt and on the berth deck. The former space is entirely dependent for its ventilation upon the gun ports and hatches, which have to be closed in bad weather. There is no artificial ventilation of this space, and yet 600 men berth here.
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> Interesting features of these cases were that both occurred in men who slept on the deck (the linoleum had become very defective and filth and moisture had collected beneath it), and also that the period of incubation was well established in one of them. This man belonged to the crew of one of the steam launches, but owing to bad weather he slept for one night on the linoleum of the berth deck. The disease appeared on the fifth day after this event. The other case appeared several days before.
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> This disease was promptly checked by making the whole crew sleep on the upper decks in the open air. The gun deck was thoroughly aired by opening all ports and hatches. All living spaces were scrubbed down with a 1–200 solution of bichloride of mercury and then sealed up and fumigated. The clothing bags and hammocks were sterilized by steam. Later on the old linoleum was taken up and new linoleum put down.

The cause of the disease is well known, and this places it definitely in the class of preventable diseases, a demonstrated fact which the navy must strive to utilize to its practical advantage by all modern sanitary methods. The work of Flexner and Jobling gives promise that a specific curative serum will soon be available.

Pneumonia.—This disease has been an important factor in the morbidity rate of the navy, although it was slightly less prevalent in 1907 than in 1906. Pneumonia is essentially a disease of modern overcrowded conditions, and its development is favored by states of body and surroundings like those mentioned above as favoring cerebro-spinal fever, and like that disease its prevention requires the exercise of all hygienic rules and the employment of all modern methods of sanitation.

Plague.—While this disease does not represent an imminent or serious danger to the navy in general, the seagoing portion of the service in its visits to various parts of the world has always been more or less exposed to the possibility of infection, and in a few instances has actually suffered a limited invasion. This fact, taken together with the presence of the disease in San Francisco and its recent appearance in Seattle, makes the problem of combating plague a matter of something more than merely academic interest to the navy. The development of plague in its bubonic form on board ship, or at any of the stations, would be serious enough, and would be a signal for radical protective measures, but the development of the disease in its severer pulmonary form would be real occasion for alarm and call for the most prompt and thorough action to prevent its spread. The dissemination of the latter form is extremely rapid, probably because it is not entirely dependent upon rodents, and, moreover, as it is impossible to determine which form will develop, it is the part of wisdom to regard the menace in the light of its more dreaded manifestation.

The discovery that the disease is introduced and in the main spread by infected rats and the fleas which infest these animals clearly indicates the channel in which preventive efforts are to be directed, but the extermination of rats as a means of suppressing the disease is a herculean task, difficult of accomplishment, and other measures of a protective nature based on the recognized habits of rats, and aiming at their exclusion from habitations and communities, must of necessity be added to the destructive campaign. The disseminative character of past epidemics of the disease is a sufficient warning that no reasonable and feasible steps, calculated to prevent the invasion or limit the spread of the disease, should be neglected. A knowledge of the means by which plague is introduced will indicate the precautions to be observed and the measures to be adopted on ships of the navy, such as the employment of rat guards on anchor chains and mooring lines, etc. For the adoption of effective measures on shore the life habits of the rodents must also be known. In each place the destruction of rats must be carried on vigorously by every practicable method as the most important element of the work to prevent plague introduction.

Early in February of 1908 considerable apprehension was felt over the health conditions, owing to this disease, in San Francisco, particularly in the near prospect of the arrival of the Atlantic Fleet, and not only were strenuous efforts made in the affected locality to exterminate rats and control the epidemic, but the neighboring communities took such steps as were shown to be necessary to prevent its introduction. This was also the case in and about Seattle, and at the naval station adjacent to each of these cities proper action was taken.

At Mare Island Navy-Yard a board appointed by the commandant "to consider the question of adopting precautionary measures for protecting the community at this navy-yard and the personnel of the fleet from plague infection," reported in full the existing conditions and made specific recommendations relative to necessary protective measures.

At Puget Sound Naval Station, as soon as plague was reported to be in Seattle and after the senior medical officer of the station had conferred with the commandant and captain of the yard, an order was issued looking to the abolishment or abatement of the rat pest. But inasmuch as there were no cases of plague in the immediate vicinity of the yard it was not considered that an emergency in relation to the disease had arisen, and more elaborate measures were not instituted, except that navy-yard tugs when tied up at Seattle and all other boats tying up at the yard were compelled to put rat guards on the lines until the officers of the Public Health and Marine-Hospital Service on duty in Seattle published notice that no more plague rats had been found on the sound.

The reports of plague in Venezuela prompted measures similar to the above at the naval station, San Juan, P. R., as recommended by the medical officer of the station on May 21, 1908.

Malaria.—Though this disease usually responds easily to the familiar specific treatment and is eminently preventable, it contributes largely to the morbidity of the service (1,455 cases during 1907), and is responsible for a great many sick days (16,367 during 1907). Its prevalence is widespread, and cases originate at nearly all the stations, but its greatest prevalence is at the tropical stations beyond the continental limits of the United States. In spite of this fact and the increase in naval strength, the records show a decided decrease in the number of cases as compared with 1906 (1,854). This is due to the progress in the campaign against the malarial-bearing mosquito at the various stations, but the work of destroying these insects and their breeding places has been slow, almost entirely by reason of insufficient funds, and there is still much to be done, and the sanitary problems involved must not be neglected. Quinine as a prophylactic can not take the place of those well-defined measures of sanitary engineering which constitute an obligation upon all institutions controlling large bodies of men. The task of mosquito extermination is a large though necessary undertaking, and its complete accomplishment is perhaps not to be expected, at least short of many years, so that, while the important work toward this reduction is being carried on, protective measures must be observed, such as the segregation and the employment of excluding screens or nets about both the well and the malarial sick. These well-recognized factors in the prevention of malaria should be provided for and enforced at all stations where the possibility of malarial infection exists, and though quinine prophylaxis is often necessary, this drug should only be given place as an antimalarial procedure in conjunction with other measures, particularly when the other measures can not be strictly enforced or are for one reason or another imperfect.

Exanthemata.—The various contagious diseases, such as smallpox, scarlet fever, and measles, etc., are not actually prevalent in the navy, and their existence at all beyond the initial cases in recruits, among whom principally these diseases originate, is to be attributed to the lack of adequate quarantining provisions at the receiving and training stations and to the youthfulness of a large part of the naval personnel among whom they quickly spread, particularly on board ship. The greater number of the large ships have reported one or more of these diseases, and on many they have become epidemic to a greater or less extent, the *Georgia*, the *Kentucky*, the *Virginia*, and the *Rhode Island* furnishing prominent instances. Fortunately there is a sure means of protection against the most serious of this class of diseases, and though now and again a sporadic case does occur, compulsory vaccination has reduced the chance of its development to the minimum. Occasionally, as in Vallejo, April, 1908, the disease becomes epidemic in communities adjacent to naval stations and endangers the personnel through the civil employees, so that orders requiring their vaccination or exclusion from the government reservation become necessary. Such an order was issued at the Mare Island Navy-Yard at the time of the above-mentioned epidemic.

Gonorrhea.—This is a very widespread though preventable disease, and constitutes probably the gravest menace to the physical efficiency of the United States Navy as to that of all military organizations the world over, say nothing of mankind in general. Upon the Government it also inflicts a large calculable financial loss, so that from health and economic points of view the question of its reduction should vitally interest all, from the naval or military tactician, as bearing directly upon the dependability of his force and the certain practicability of his plans, to the mercenary taxpayer. Yet the manner of its dissemination has until recently operated to defeat any organized campaign against it, and the naval service has in a measure shared the consequences. The authorities can not afford to stand unmoved in the presence of such a drain upon the physical and monetary capital of the navy, and every method which offers the slightest help toward reducing the prevalence of gonorrhea should be employed with conscientious persistence.

Though the number of cases (2,274) of this disease and the number of sick days (13,912) attributable to it were large, the records indicate a considerable reduction below the cases and sick days reported for 1906. The ratio per 1,000 shows even a more marked and actual reduction, being 51.58, as compared with 63.32. This gratifying fact may be explained in several ways, among which are to be included: (1) The better and more enlightened class of men now enlisting in the navy; (2) the more continual occupation of the men with absorbing duties during the working hours; (3) the increasing indulgence in athletics and other healthful exercises, which inspire an ambition for physical prowess and consequently greater care in avoiding exposure to disease influences; (4) the improved intellectual opportunities now offered for the employment of leisure hours; (5) the more considerate manner with which liberty men are treated and provided for; (6) the policy of assigning ships to definite home ports and returning them to that port more frequently, particularly those ships serving in tropical waters where there is little or no opportunity for profitable or decent recreation; (7) the instructions in matters of personal hygiene conducted by the medical officers; and (8) the various systems of direct prophylactic treatment instituted by the medical officers with the approval and cooperation of commanding and executive officers.

As bearing upon the subject under discussion, Surg. W. B. Grove has made the following comment:

> This opportunity is taken to make a few remarks concerning the "Restricted list" aboard ship. The day of its usefulness has passed, and its retention is to a certain extent harmful to the personnel of a ship. If the men find that restriction does not follow their appearance at the sick bay with simple venereal affections, they avail themselves much earlier of their opportunities for treatment. The benefit of getting hold of all venereal diseases early can not be overestimated. How many cases only come for treatment when they are no longer able to get around and make the excuse for not coming sooner—"they did not want to be restricted." It is believed that the spread of venereal diseases by infected members of the crew can be minimized by explaining to each person as simply as possible the dangers of transmission of the trouble from which they are suffering. A few remarks upon the bad effects of drinking and venery on themselves, while infected, should be included in the talk. The class of men we are enlisting now are more approachable and more interested along such lines than ever before in the history of the navy. The abolition of the restricted list it is believed would cause a great decrease in the number of sick days from venereal causes and remove what is considered by a great many of the enlisted personnel as a positive hardship.

Syphilis.—Practically all that has been said of gonorrhea may be said of this disease with equal force, including the gratifying fact that as compared with 1906 there has been a notable reduction in its prevalence, and this in spite of the large increase in the naval strength. There were almost one-third fewer cases in 1907 than during the previous year. Nevertheless it still exists a widespread enemy to health, particularly through its effects upon the circulatory and nervous systems, and represents an even greater expense to the Government than its most prevalent associated venereal disease—gonorrhea. Such facts, together with the apparent success attending the above-enumerated elements in venereal prophylaxis, should convince the navy that these variously termed diseases are a legitimate object of serious official consideration, and should stimulate a redoubling of efforts in this direction. Moral stability is intimately linked with physical well-being, and the far-reaching benefits of intelligent action in the matter can not be overestimated.

Conclusion.—Even those diseases, the causes of which are still unknown, may, to a great extent, be prevented, and though splendid progress is being made in the treatment of diseases, the real desire and aim should be to so employ modern hygienic rules and sanitary methods that the need of treatment may be reduced to the minimum. It may not be amiss to say that resistance to the invasion or destructive effects of almost every disease will be increased by building up the physical condition of the naval personnel by those means at our command which have so frequently been pointed out.

NEW CONSTRUCTION COMPLETED, AT PRESENT BEING UNDERTAKEN, AND CONTEMPLATED.

Naval hospital, Portsmouth, N. H.—The department has already authorized the preparation of plans and specifications for a new hospital at this station to cost $150,000, and it is the bureau's intention, as soon as an appropriate site can be selected, to have these plans and specifications prepared. As mentioned in the bureau's report of the previous year, owing to the continued blasting in the vicinity of the present hospital building, incident to the construction of a new dry dock, and to the further encroachment upon its site of navy-yard shops, the bureau has been under the necessity of seriously considering the abandonment of the present building. Having been reported as being structurally weak during the past year, the bureau requested that a critical examination be made by the civil engineer of the navy-yard and a report submitted upon this building. The examination having revealed no conditions that would indicate immediate danger to the safety of its occupants, the building is retained for hospital purposes pending the erection of a new hospital. In view of the conditions above stated, however, and the prospect of a new hospital building being erected in the near future, only minor repairs and changes have been instituted and carried out during the past fiscal year.

Naval hospital, Chelsea, Mass.—The question of the erection of a new hospital building at this station in the near future is under serious consideration by the bureau. In view of this fact, no major alterations or changes or new construction have been undertaken during the past year. The final decision as to whether the old building should be remodeled and renovated to conform to modern requirements, or whether to build an entirely new structure on a new site, is still in abeyance, but the estimated cost of renovating and rehabilitating the present old structure on the lines projected in plans and specifications recently prepared for this bureau, in accordance with departmental authority, has indicated that the sum allotted, namely, $200,000, is insufficient, and that the building so planned is not entirely satisfactory owing to the difficulties encountered in laying out a suitable building on the present site. The bureau is seriously considering a proposition to erect an entirely new hospital building on the elevated ground in the rear of the present building. If this proposition is finally adopted it is the bureau's intention to provide for a hospital building along the general lines of that planned for the new naval hospital at Puget Sound, Washington.

The completion of the junior officers' quarters at this hospital during the past fiscal year has added much to the general efficiency of the institution, giving these officers quarters outside the main hospital building and releasing much needed space in that building for hospital purposes proper.

Naval hospital, Newport, R. I.—As stated in the bureau's previous reports, this hospital building is entirely inadequate to the needs of a large training station, and active steps are at present being taken by the department to acquire a site for a new structure. A provisional allotment of $200,000 from the hospital fund has been made for a new hospital building on this station, and it is the bureau's intention to adapt for this hospital the plans and specifications already prepared by the Bureau of Yards and Docks for the new hospital at Puget Sound. With the proposed new hospital building in view at no distant date, no new construction of importance has been undertaken during the past fiscal year.

Naval hospital, New York, N. Y.—No major alterations or changes have been undertaken at this hospital during the past fiscal year. The hospital proper is in good general condition. The alterations in the old laboratory building fitting it for hospital wards are approaching completion and there only remains a few minor installations of lighting, heating, etc., to render it fit for occupancy. The quarters for the medical officer in command at this hospital are in need of rather extensive repairs. These have been authorized and when completed should place this building in a satisfactory condition for some years to come. The installation of an incinerator and disinfecting plant and an elevator leading to the upper ward from the ground floor in the southern wing of the hospital and certain repairs to the interior of the building represent features of improvement which are contemplated and are under consideration by the bureau.

Naval hospital, Philadelphia, Pa.—Under authority of the department's letter of May 5, 1908, plans and specifications arranging for the complete rehabilitation of this hospital building were authorized and have been prepared by the Bureau of Yards and Docks. It is the bureau's intention to expedite this work as much as possible. Owing to the pending renovation of this hospital, only such repairs and changes have been made during the past fiscal year as would maintain the buildings in a state of efficiency and repair. The proposed changes in the old building contemplate a complete rehabilitation. When completed this hospital will conform to modern standards and provide for the hospital care and the treatment of the sick of this station in an adequate manner.

Naval hospital, Annapolis, Md.—No major new construction was undertaken at this hospital during the past year. Repairs were made to the sea wall, a flagstaff erected, and a storeroom altered to provide laboratory facilities. The plans and specifications providing for the new wards, appropriated for in the naval act of May 13, 1908, are practically completed. The original estimate of work at this hospital carried an amount sufficient to provide quarters for the medical officers. This estimate was curtailed, and as the same necessity for these querters still exist; the bureau has again to urge their provision. The present method, which requires that medical officers live in the residential district of Annapolis. is very unsatisfactory and not conducive to efficiency. The junior officers should be more accessible in emergencies and the officer in command so placed as to allow of a closer supervision of the hospital.

Naval hospital, Washington, D. C.—Certain minor changes in this hospital building have been made during the past year to better fit it for its dual uses, viz, as a hospital for emergency cases from the navy-yard and marine barracks and as a training school for the Hospital Corps. No new construction of importance has been undertaken, nor is any contemplated for the ensuing year. During the past year the conversion of the upper story of the building into dormitories for the members of the hospital corps training school was completed. and other minor repairs and changes to provide for the care of the Hospital Corps were made.

Naval Medical School Hospital, Washington, D. C.—The repairs and improvements authorized and completed at this hospital during the current fiscal year comprised the erection of a laundry, stable, and greenhouse building, two new wards with storerooms and accessories, an extension to the power house, the provision of new concrete walks, a coping wall on the E street terrace and sidewalks, new concrete baseboards in the wards and halls, etc., and the installation of a ventilating system to secure an outlet for the overheated air in conduits. Minor repairs in buildings and leveling and sodding of the grounds have also been carried out during the year.

To provide certain necessary adjuncts to this hospital, the bureau has requested the Bureau of Yards and Docks to proceed with the preparation of plans and specifications, under departmental authority, for sick officers' quarters, quarters for female nurses, quarters for male nurses, and quarters for medical staff. These plans are in course of preparation, and it is designed to provide for these buildings out of the hospital fund.

Naval hospital, Norfolk, Va.—The reconstruction of this hospital, the final appropriation for which was made during the past session of Congress, is practically completed, and there only remains the installation of the heating plant to finally fit it for occupancy. This installation is contingent in turn upon the completion of the new power house which is still under construction. An addition to and a renovation of the pesthouse was necessitated during the year by reason of the demolition of the main hospital and the need of new quarters, and these changes afforded accommodations for the officers of the hospital, an operating room, and a ward for 20 patients. The majority of the patients, however, have been treated in a tent camp during this reconstruction period, and with general satisfaction, except during the most inclement weather.

During the year a large sewer has been laid through the hospital grounds by the city of Portsmouth, discharging in deep water at hospital point. This sewer forms a valuable connection for the hospital system of sewers.

The residence of the officer in command has been extensively repaired and renewed during the past year, and is now in good condition.

In the matter of new construction contemplated at this hospital, the medical officer in command has strongly recommended that the quarters of the various medical officers be provided with a steam connection and radiators for the purpose of heating, and also that the upper stories of the junior medical officers' houses be finished off, so that they may be occupied by servants. In addition, it has been recommended that an independent telephone system connecting the hospital with the guardhouse, pesthouse, power house, the wharf, and the houses occupied by medical officers be installed. The question of providing a new stable and for a more complete drainage system of the grounds is under consideration by the bureau.

Naval hospital, Pensacola, Fla.—Owing to the small appropriation available for the renovation of this building ($25,000), and the difficulty of making this sum do the work required, the hospital has withheld making any change of importance at this hospital during the past fiscal year. Owing to its geographical situation, the importance of this hospital to the fleet upon the opening of the Panama Canal will probably indicate the necessity of increasing its size and of placing it in a satisfactory condition. For this purpose a larger sum will be required than is now available. Only minor repairs and alterations on the buildings and grounds were carried out at this hospital during the past year.

Naval hospital, San Juan, P. R.—During the fiscal year the medical officer in command at this hospital submitted plans and specifications for new wards, operating room, and administration building, but in view of the present unsettled policy regarding this station the bureau has not as yet seriously considered the construction of a new hospital at this place, although the present building is in need of rather extensive repairs and improvements. Should this station assume greater importance in the near future, as it may do should the fleet rendezvous in the vicinity, it will become necessary to make adequate provision for the care and treatment of the sick of such fleet and of the present station. In view of the above-mentioned state of affairs only minor repairs, pending a necessary general overhauling, have been made during the past fiscal year.

Naval hospital, Sitka, Alaska.—Minor repairs only were made on this hospital building during the past fiscal year. While the present building used as a naval hospital is an improvement on the former one, it is not an appropriate building for hospital purposes; but, as the importance of this station does not seem to warrant the provision of an entirely new hospital, the bureau has not seriously considered replacing the present structure and does not contemplate making any further improvements.

Naval hospital, Puget Sound, Wash.—Only minor repairs were carried out on the hospital building during the past fiscal year. In view of the pending award of contract for a new hospital at this station, and furthermore, in view of the necessity of moving the present building when the excavation for the new dry dock is instituted, no improvements are contemplated. The naval acts of March 2, 1907, and May 13, 1908, appropriated $150,000 for the erection of a new hospital building, and plans and specifications were prepared for a model structure. Unfortunately, however, when bids were opened none were within the appropriation, and this necessitated readvertisement for bids under several alternative propositions. The results from these new proposals are shortly expected.

Naval hospital, Mare Island, Cal.—The addition to the contagious-disease building was finished during the past fiscal year. This addition provided for a ward of eight beds each on either side with nurses' room and lavatory arrangements. Each of the new wards is built sufficiently above ground to enable a commodious basement to be constructed later if desired. The new wards are connected to the main building by open passageways. Plans have been prepared in the Bureau of Yards and Docks, by direction of this bureau and under authority of the Secretary's letter of May 5, 1908, providing for a surgical ward and operating-room building. These plans have been forwarded to the civil engineer at the navy-yard, Mare Island, Cal., for the preparation of specifications, and during the coming year it is expected that material progress on this building will be made. Under the direction of the Department of Yards and Docks, a power-plant building has been changed by moving the laundry into the old gas house, taking down a partition wall and running a corrugated-iron partition about 10 feet away, thus giving ample room for a third boiler to be installed. The machine shop has been removed to the remaining partition of the old laboratory. Among minor changes and repairs completed during the fiscal year were included the following: (*a*) Repair of chimneys, (*b*) flooring of tents, (*c*) laying new hearths in officers' quarters, and (*d*) general repairs to ambulance and wagon, etc. Among the items of work recommended at this hospital in addition to the above-mentioned surgical ward and operating-room building, are (*a*) the placing of a second story on the old gas building to provide rooms for civil employees, (*b*) a mortuary building in the cemetery, (*c*) a picket fence in front of hospital and cemetery, (*d*) oil burners for boilers with full tank and appropriate pipe line, (*e*) a crematory for garbage, and (*f*) one chemical fire-engine house.

Naval hospital, Great Lakes.—The naval act of May 13, 1908, provided for the erection of naval-hospital buildings at this station, to cost not to exceed $250,000, and preliminary plans for these buildings are now in course of preparation. The style of hospital building proposed is that of a central administration building of three stories and two wings, each of two stories containing two wards, with a capacity of about 24 beds each The operating room and subsistence portion of the building extends from the administration portion to the north. There is also planned a contagious-disease building, but the feasibility of providing this depends largely upon the cost of the main building, and whether or not there will be a sufficient balance remaining from the appropriation for the purpose. It is the bureau's desire to expedite the preliminary work at this hospital, so that the foundations may be in place before the cold weather sets in.

Naval hospital, Las Animas, Colo.—The work of construction and reconstruction at this hospital has continued during the year along the lines indicated in the bureau's last annual report. This work may be classified under the heads of (*a*) repairs to existing buildings, (*b*) construction of new buildings, (*c*) improvement of grounds, and (*d*) water, sewer, lighting, and heating systems. Under repairs to existing buildings the following have been completed: Repairs and alteration to east storehouse to fit it for a recreation building (nearly completed); repairs and alterations to west storehouse to fit it for a stable; plastering exterior walls of officers' quarters Nos. 2, 3, 4, and 6; reenforcing walls of officers' quarters, constructing tents, enlarging chimneys, etc. Under construction of new buildings is included five buildings for quarters for married stewards; four lean-to wards; subsistence building; a bakery building; a laundry building; two buildings for quarters for civilian force; a bowling-alley building; shelter for ladder truck and hose cart and a north storehouse. Only the latter building is in the initial stage of construction, all the others being practically completed. Under improvement of grounds is included the construction of 1,200 linear feet of 4-foot sidewalk; a flagstaff; construction of roads, irrigating laterals and farm improvements; construction of 5,500 hundred feet of 10-inch irrigating main and 4,000 feet of 8-inch main. Of the work included under the water, sewer, and lighting and heating systems work on the lighting contract has been commenced, the power-plant contract will be completed in October, and the water system with irrigation reservoir is about 30 per cent completed. A garbage crematory and building have been erected and is in operation.

The following work is authorized, but not yet completed: Erection of west wards, quarters for paymaster's clerk, repairs to officers' quarters No. 1, irrigation well and artesian well. The most important contemplated work at this hospital includes accommodations for sick officers, a building for female nurses, a morgue and dead house, and an extension of the irrigation system.

Naval hospital, Canacao, P. I.—The progress of work on new construction at this hospital has proceeded along the lines planned for the expansion of the institution by the bureau early in the present fiscal year. To provide the necessary space for the new ward, the sick officers' quarters and the stewards' quarters have been moved to the west of the main hospital building. The level of a large part of the level ground in the rear of the hospital has been raised above high-water level, and a sea wall on the south is nearing completion. Two sets of officers' quarters have been completed, the pharmacists', the hospital corps' quarters, as well as the bachelor officers' bungalow are in process of building, and the medical-supply depot, the sick officers' bungalow, and the new building for Chinese employees are nearing completion. During the past year it became necessary to construct a new galvanized-iron roof for the commanding officers' bungalow. There still remains a considerable amount of construction and repair work yet to be commenced, as follows: Changes in the subsistence building, moving and enlarging the operating-room pavilion, the building of an ice and cold-storage plant and morgue, the building of a garbage crematory, the construction of an insane brig, the building of roads and fences, the laying of a railroad track, and the filling in behind the new sea wall.

Naval hospital, Yokohama, Japan.—After considerable delay, incident to a dilatory attitude on the part of the architect first employed and to the fact that the first bids received were in excess of the appropriation, the contract for the construction of the new main administration building and sick officers' quarters was awarded on January 30, 1908, and the work under it has since progressed in a satisfactory manner. The construction of the new servants' quarters and their occupancy during the past year has been a change of decided benefit, not only to the appearance of the hospital compound, but also an improvement from a sanitary point of view, as these old quarters were in a very bad condition, not warranting repair, and were vacated, razed, and removed from the grounds. During the past fiscal year, upon recommendations made by the medical officer in command, this bureau recommended and the department authorized the construction of a new kitchen building, the old structure being in such a state of dilapidation from age as to make it inadvisable to approve further expenditures upon it in the matter of repairs, and this work will go forward with the construction of the new main building. This hospital has continued to be of material service as a sanitarium for the treatment of those debilitated by tropical influences and as a place for the care of the sick and injured from ships cruising on this station.

Baguio, Benguet, P. I.—The report of the board, appointed by Rear-Admiral J. N. Hemphill, U. S. Navy, for the purpose of investigating the desirability and selecting one of the available sites for possible use by the navy for the establishment of a naval hospital, was rendered on September 30, 1907, and transmitted through the department to this bureau, where it was received on November 16, 1907. The report shows careful study and treats the subject exhaustively, and the bureau concurs in the opinions expressed in so far as the question of setting aside a site for naval purposes is concerned. A recommendation for such action by the department was made in the report for 1907. The question of establishing a naval hospital at Baguio was also there discussed, and the opinion expressed that while "it is deemed advisable to secure ground for this purpose as soon as possible * * * the need of such a sanitarium is, however, not pressing * * *." The bureau is still of this opinion and again recommends that necessary steps be taken in regard to the reservation of a site.

DISPENSARIES.

In the reorganization of the bureau which was reported last year, the dispensary service for officers on duty in Washington and their families was divided, the division for the main work of this branch of the Medical Department being transferred to new and completely equipped accommodations in the Medical School Hospital; three of the rooms in the Mills Building, formerly used in the dispensary service were retained for that purpose and partly reequipped and designated for the care of purely emergency cases among the officers on duty in the department.

The reasons for this change and the excellent facilities provided under the new arrangement for the most thorough diagnostic procedures and modern methods of treatment, were discussed in considerable detail in the report for 1907 and need not be dwelt upon here; suffice it to say, that, aside from the difficulty experienced in diverting certain patients from the central and familiar consulting offices and inducing them to conform to the new order of dispensary service, the plan has worked well, and the year's record of work is large and characterized by creditable results. A card notice has recently been issued which gives the consultation hours at both offices and outlines the medical, surgical, and special professional services available to those entitled to naval dispensary benefits.

Dispensary, Medical School Hospital.—The work of this division is conducted in conjunction with and as an out-patient department of the Medical School Hospital. While under the direction of a medical officer detailed especially and solely for that duty, and to respond to calls throughout the city, patients visiting the dispensary at the proper times may benefit by the advice of surgeons and experts in other professional branches, who have definite consulting hours, and who, being regularly assigned to duty at the hospital or Naval Medical School, are at the disposition of the medical officer in charge for purposes of consultation whenever he desires it or deems necessary. This division has admirably fulfilled the purpose for which it was designed and the best interests of the service are subserved by operating it independently from that in the Mills Building.

The report for the period since its establishment includes 3,966 visits, 1,921 office consultations, and 5,846 prescriptions filled.

Dispensary, Mills Building.—The work of this division is accessory to that at the Medical School Hospital and is conducted in conjunction with the Division of Records and Pensions. Operated independently from the principal dispensary service it has been possible to give prompt attention to the officers in the department who are in need of emergency treatment and who can not afford more than a few minutes away from their offices. The equipment is complete for this purpose, and the medical officer in charge of the Division of Records and Pensions, aided by the assistant to the dispensary service, attends to all cases.

The report of work for the period since its establishment includes 5,800 office consultations and 2,409 prescriptions filled.

MEDICAL SUPPLY DEPOTS.

There are three of these under the navy, situated geographically to correspond with the three great divisions of naval stations—Atlantic, Pacific, and Asiatic—and they furnish every sort of material for the care of the sick within the sphere of their respective stations. These storing and distributing centers represent one of the most important branches of the Medical Department and have been established one by one as the service expanded and their need was indicated: First, that in Brooklyn; then, that at Mare Island; and, last, that in the Philippines. Each one serves a wide field ashore and afloat and, besides filling numerous regular and special requisitions and manufacturing many articles, such as boat boxes, medicine chests, etc., arranges for the repair of the medical and surgical articles and hospital property returned on reports of survey. Each must also hold itself in readiness to meet unusual or emergency demands. The forces at the depots are extremely small, in comparison with the amount of responsible and arduous work to be done, incident to assembling, storing, packing, and distributing in the most accurate manner. Yet, in spite of the circumstances under which they labored during the past year, by reason of the shortage in personnel and the excessive, pressing demands—first, upon the Brooklyn depot, in equipping the fleet preparatory to its cruise to the Pacific, and then, upon the Mare Island depot, in replenishing the supplies of the fleet and completely outfitting the *Relief*, preparatory to the continuation of the cruise to Asiatic waters—the work was carried on with promptness and efficiency. The marine detachment in Cuba continued to add to the work of the Brooklyn depot during the year, and the equipment of the detachment sent to Panama in June represented an emergency. There were no calls for supplies to aid in the relief of sufferers from the Chelsea fire and the cyclone disaster in Mississippi. One of the features of these supply depots is that each has in stock ready for immediate shipment, medical supplies and field hospital equipment for an expeditionary regiment. The one at Cavite was recently returned from Olongapo, where it had been used for several months.

Brooklyn, N. Y.—During the fiscal year 1908 about 590 requisitions from vessels and stations were filled and shipped from this depot, and the stores so handled and distributed amounted in value to about $225,000. All the business of the institution was economically transacted, and the records and accounts accurately kept.

Mare Island, Cal.—In July, 1907, this depot was removed from its former site near the navy-yard gate, where it was encroached upon by the collier under construction, and is now located on the hill in the rear of the administration building. The process of removal occupied nearly four months, during which time the depot was practically out of commission, and it was not possible to fill requisitions. The new location in many respects is not as desirable as the old one. It is farther removed from the workshops and water front, and therefore is not as convenient for the treatment of accident cases (the yard dispensary being in the same building as the depot), and the increased distance from the wharf where stores are received and shipped consumes more time in the hauling of stores and increases the expense somewhat. In other respects, however, the removal of the building has been attended with considerable benefit. In the former location there was no basement, except that small portion used as a packing room. Now there is a "finished" basement with cemented floor extending under the whole building. This adds very much to the capacity of the building as a storehouse. The room for storing of liquors in bulk is now located in this basement, which is better in every way than keeping them on the top floor, as was formerly necessary. Notwithstanding the increase of capacity, the depot building is very much crowded and will scarcely meet the demands that will be made upon it if a large fleet is maintained on this coast.

During the fiscal year 1908 about 108 requisitions from vessels and station were filled and shipped from this depot, amounting in value to about $43,000.

Cavite, P. I.—This depot is about to be removed to accommodations at Canacao, P. I., where its operation will be conducted under the direction and supervision of the medical officer in command of the naval hospital at that place. Orders to that effect were issued under date of August 3, 1908, and will take effect upon the completion of the construction and when the medical stores are transferred from the naval station, Cavite, P. I. The building assigned to the combined purposes of depot and dispensary at Cavite was inadequate to the needs, in poor state of repair, and otherwise a makeshift, so that, as the Asiatic station grew in importance and a large, well-equipped storehouse became necessary, it was natural to build on the hospital reservation. This change in the situation, moreover, is in the interest of concentrating medical department concerns at that station, of economy in administration, and of facility in handling the work—that of supplying the hospital at Canacao, in particular, which represents the heaviest demand upon this depot.

During the fiscal year 1908 about 100 requisitions from vessels and stations were filled and shipped from this depot, amounting in value to about $17,000.

PRISONS AND PRISON SHIPS.

These provisions for the just punishment of adjudged offenders against naval law constitute important objects for consideration from hygienic and sanitary points of view, and, while the bureau entertains no thought of making the terms of imprisonment easy, nor of doing anything to modify their legitimate punitive character, it is earnestly submitted that there should be no disregard of the established rules for mental, moral, and physical well-being, and no neglect of measures to prevent the development or invasion and spread of disease. Appropriation for the proper maintenance of this branch of the naval establishment should be liberal, and, in estimating the items of annual prison expense and in construction for prison purposes, due weight should be given to health requirements, and ample provisions should be made for this feature of prison administration. Space does not admit the discussion of the various needs, for they are many and can not be dismissed lightly; suffice it to say that experience, particularly during the past year, has demonstrated that prisons should be protected against the invasion of contagious and infectious diseases by quarantining new arrivals sufficiently long to cover the incubation period of any such disease; that both prisons and inmates should receive careful hygienic and sanitary supervision; and that all prisons should be largely independent in respect to the care of their sick and injured. This would be in the interest not only of health, but of discipline and effective confinement.

U. S. S. Southery, Portsmouth, N. H.—The health and sanitary conditions of this ship were good, but the record is the result of careful hygienic supervision of the guard and prisoners and the cleanliness of the ship. With a complement of 457 plus, there were 184 admissions and 1,119 sick days. The ship fails to conform to sanitary requirements in several respects, particularly ventilation, and this defect was especially noticeable during the past year, and a decided deficiency of air space has existed in the several living compartments.

Such affections as headaches, tonsilitis, and catarrhal conditions of the respiratory tract were far too prevalent to be accounted for except as incident to lowered vitality—the result of overcrowding and poor ventilation. The air space per prisoner averaged 168 cubic feet, and that for each member of the marine guard averaged 184 cubic feet. There is need to reduce the number of prisoners housed on board and to install a modern system of artificial ventilation, for otherwise the health of the ship will continue to be jeopardized. When the new prison is put in commission this congested condition of the *Southery* will be relieved.

Navy-yard, Boston, Mass.—The prison at this yard previous to 1898 averaged 39 inmates, but from that date they have gradually increased until, at the close of 1907, there were 232 confined. In 1902 the remodeling of the prison was begun, according to plans that would have made an excellent prison for the accommodation of 300, with the necessary space for dining rooms, kitchen, laundry, guard rooms, sick quarters, etc.; but in the expectation that the proposed prison at the navy-yard, Portsmouth, N. H., would soon be built, this work was discontinued, so that it was totally inadequate and unfit for the demands made upon its capacity during the past year. The consequent crowding and lack of sufficient sanitary facilities made its condition most unhygienic and required the most careful supervision. The only disease invasion of any consequence was diphtheria, but this was soon controlled, and on the whole the health of the prison was good.

Navy-yard, New York, N. Y.—The prison at this place has proved to be a structure well adapted for the purpose. At the close of the year, however, owing to the activity in court-martial proceedings, a large number of prisoners had accumulated and the capacity of the prison was taxed beyond its sanitary limits. The medical officer of the yard made proper recommendations in regard to this condition and it will probably be remedied. Otherwise the prison was kept in sanitary condition and the health record is good.

Navy-yard, Mare Island, Cal.—The prison at this place was kept clean and in good sanitary condition. It was usually overcrowded, but there was no serious illness among the prisoners. The prison ship *Manila* requires no special comment. She was kept in the best sanitary condition and the health of the prisoners was excellent, no epidemic diseases occurring and a minimum of serious cases recorded.

Cavite, P. I.—The sanitary condition of the old prison is not satisfactory. It is damp, dark, and poorly ventilated and has at times been overcrowded. It should be torn down and a new building constructed. The health of the prisoners has been fairly good, probably owing to their outdoor police work. A few cases of dysentary and many cases of dengue were the principal contributors to the sick record.

TRAINING STATIONS AND RECEIVING SHIPS.

It can not be emphasized too strongly that it is an injustice to the best interests of naval reputation among the people of the country and a grave danger to overcrowd the boys and young men who are congregated at these stations. The necessity of providing adequate accommodations to obviate this, estimating requirements on the basis of probable needs in an emergency expansion of the naval force, has been repeatedly urged. It is at such a time, particularly when haste would prevent the proper supervision which in time of peace partially counteracts the danger of overcrowding, that the consequence of this unhygienic practice might become disastrous. The service has already witnessed warning evidences of this possibility in the reported instances of the spread of infectious and contagious diseases, not only among the personnel of the station, but to other stations and to ships, by the unguarded transfer of men. During the past year many such reports have been received. Two cases of diphtheria were reported on the *Southery* in men recently received from the *Hancock;* an epidemic of measles was reported to have occurred on the *California* in a draft of men received from the naval training station, San Francisco, where the disease was epidemic; the *Buffalo* reported epidemics of measles and mumps in drafts of men from the naval training station, San Francisco; the *Dolphin* reported an epidemic of mumps in a draft of men recently received from the *Franklin;* the *South Dakota* reported epidemics of influenza, measles, and mumps, clearly traceable in the same way to the *Independence* and the naval training station, San Francisco; the Philadelphia Navy-Yard reported the following contagious diseases:

Disease.	Date of first case.	Total number of cases.	Date of last case.	Number cases.			
				Lancaster.	Brooklyn.	Indiana.	Isolation camp.
Varicella	Jan. 25	1	Jan. 25	1	0	0	0
Parotitis epidemic	....do...	13	Mar. 30	2	1	8	2
Morbilli	Mar. 7	9	Mar. 18	0	3	6	0
Variola	Mar. 16	1	Mar. 16	0	1	0	0

All of these cases occurred in drafts of men coming from the United States Naval Training Station, Norfolk, Va., and in practically every case the disease developed within a few days after their arrival, showing the infection to have originated at Norfolk.

These examples must suffice. All tell the same story and convey the same lessons. Instructions for the guidance of medical officers at the several stations in question have been issued, but such a step unaided will not meet the needs of the situation, for there must be not only less haste in returning men to duty after recovery from serious illnesses and greater caution in the transfer of men from one station to another, but there must be proper provisions for carrying out the measures required. There must be suitable detention barracks, examining rooms, and disinfecting plants at all training stations and receiving ships. The expense of providing these facilities would be trifling compared with the benefits which would accrue. The disregard of possibilities herein pointed out may, and, indeed, some time surely will, seriously hamper important movements and naval operations at a critical time. The practical bearing of such a weak point in the naval system upon the broad problem of efficiency can not be too early recognized.

Newport, R. I.—The general health of the station was very good, the cases of illness being fewer than last year, while the average complement was greater than for any previous year, being 1,837. The largest number at the station at any one time was 2,738. The percentage of sick was 0.64+. No serious epidemic occurred, the infectious diseases and their prevalence being as follows: Measles, 192; mumps, 69; epidemic catarrh, 17; pneumonia, 15; enteric fever, 11; cerebrospinal meningitis, 4; erysipelas, 2; chicken pox, 2; scarlet fever, 1. The records show that 98 were surveyed and discharged from the service for disabilities contracted prior to enlistment and that 115 additional had been recommended for discharge and were awaiting action by the department at the close of the year.

The sanitary condition of the station as a whole was good. The new detention buildings, designated barracks A, have been a valuable aid in handling the large number of recruits received, but they were found inadequate owing to the irregularity in the daily number of recruits received, and an appropriation was asked for the purpose of building another unit to relieve the congestion which at times occurs. An appropriation was also asked to replace the old and insanitary wooden building where recruits are received and sanitarily prepared, in person and clothing, for release from quarantine. The total number of persons put through the prescribed routine of disinfection and fumigation in this building was 6,096. Barracks B is undergoing repairs, which are of a sanitary nature, and barracks C, which contains the medical department accommodations, is in good sanitary condition.

A garbage incinerator for the station is in course of construction. The use of the well on the hill in the rear of the War College was discontinued after a report from the Naval Medical School laboratory that both chemical and bacteriological examination showed the water to be poor in quality and unfit for domestic purposes.

The *Reina Mercedes* and *Cumberland* are both in good sanitary condition. The *Constellation* is not adapted, from a sanitary standpoint, for the quartering of any number of people on board, and at present is being used only when the "brig" overflow requires the use of her cells.

Nofolk, Va. (*embracing the Franklin, Richmond, and the St. Helena Reservation*).—The general health of the station was good except for the usual run of measles and mumps, which was quite troublesome at times during the year. Two hundred and twenty-seven cases of the former disease and 64 of the latter developed, together constituting nearly one-third of the total admissions to the sick list. The cases were mild in character, almost without exception.

There were 924 admissions and 9 readmissions to the list during the past year, causing 3,719 sick days. The average complement for the year was 1,998; the per cent of sick 0.49. For 1906 the average complement was 2,248, sick days 11,119, and per cent of sick 1.26. It would appear, therefore, that there was an improvement in the health of the station during the year 1907.

Five hundred and eighty-seven persons were examined during the year for enlistment or reenlistment, of which 200, or slightly over 34 per cent, were rejected; 6,270 recruits were received from the various stations, a very small per cent of whom represented reenlistments. In the absence of other provisions the quartering of recruits in tents, which is rendered possible at this station by the comparative mildness of the winter climate, is believed by the medical officer to have conduced much to the general welfare of the men.

There was no illness attributable to food or water other than the candies and nondescript articles of diet to be had in the canteen, which, eaten without restraint between the regular meals, have been more or less deleterious to digestion and the general health. Many cases of headache, indigestion, palpitation of the heart, or general morbidity of the nervous system, it is reported, are seen among the recruits, and are easily traceable to the use of tobacco in one way or another.

A new building containing toilet and bath arrangements has been recently built on the reservation near the recruits' camp, and is a very desirable improvement. There are 34 toilet seats and 6 shower baths (hot or cold). Around the sides of the rooms are arranged wash troughs also. It is said a very bad feature in connection with this building is that the sewage and drainage pipe has its outlet at a point between the *Franklin* and *Richmond*, near both vessels, and at low tide, in summer especially, may be the means of contaminating the air aboard ship. Many improvements are needed at this station, if it is to conform to modern requirements, and it is hoped that some of them at least may be inaugurated in the near future.

San Francisco, Cal.—The health of this station should perhaps be considered good, in view of the moist climate of the locality and the immatureness as regards age and development of the seamen apprentices constantly being received.

The average complement of the station was 564; the total sick days, 8,248, and the percentage of sick, 3.79, which is a poor showing as compared with 0.67 for the preceding year. The most important diseases treated in the order of their prevalence were as follows: Mumps, 180; grippe, 59; bronchitis, 57; tonsilitis, 38; pneumonia, 5; pleurisy, 5; typhoid, 4; tuberculosis, 4; cerebro-spinal fever, 3; scarlatina, 2; smallpox, 2; meningitis, 1, and uremia, 1. Forty-three were discharged from the service on approved medical surveys and 34 were sent to hospital. No sickness was attributable to the food or water or the sewage, and the bathing facilities were entirely satisfactory. The development and spread of disease at the station is in all probability due, as Surg. J. G. Field has pointed out, to an increased susceptibility of the individual, incident to the sudden radical change of environment and life; an ignorance of the most rudimentary ideas as to the care of self from a health point of view, together with a thoughtless or willful disregard of the established rules to protect others, and the influence of a humid warm climate upon the propagation of disease germs. There seems particular need at this station for the avoidance of overcrowding and the strict observance of other measures calculated to prevent the spread and perpetuation of disease. The sanitary provisions should be improved.

The detention camp has been of great value, but there seems to be need of an enlargement of its present capacity (80).

The new sick quarters have been urgently needed, and the delay in their equipment has been the cause of serious embarrassment in the care of the sick.

U. S. S. Wabash.—The health and sanitary condition of this ship for the year 1907 was very good, considering the age and condition of the vessel and the number of men that were housed aboard. Everything was done to keep her scrupulously clean and dry. The average complement was 337; the total number of sick days, 558; and the per cent of sick, 0.45+. No disease was traceable to food or water, or indicated any sanitary defects of the ship. The absence of recreation or drill grounds for the ship's company has, however, been felt, and it is said that men who are restricted for any reason seldom get out in the sun and open air except for setting-up exercises or infantry drill, and thus soon become pale and anæmic. One hundred and fifty men were examined for enlistment, of whom 17 were rejected.

U. S. S. Hancock.—The health of the ship's company was very good. The average complement was 864.25; the total number of sick days, 1,177, and the percentage of sick, 0.37+. There is nothing in the sanitary history of the ship which calls for special mention, with the possible exception that during the fall an unusual number of cases of grippe and three cases of diphtheria developed. These latter cases were infected while on liberty, and the disease did not gain a foothold on the ship. The number of men examined for enlistment was 1,517, of which 585 were rejected.

U. S. S. Lancaster (and auxiliaries).—The health of the ships supervised by the medical department of the *Lancaster* was good and calls for no comment other than appears in the general remarks at the head of this section. The average complement was 461; the total sick days, 733, and the per cent of sick, 0.43+. The cases admitted include 3 of cerebro-spinal meningitis, 2 of which developed on board the *Lancaster;* 1 of scarlet fever, 1 of chicken pox, and 4 of typhoid. Considering the exposure of this large number of men while on liberty in Philadelphia, this is not a bad showing, though constant vigilance was necessary to prevent the introduction of disease by recruits and others and its spread among the crew. The sanitary condition of the ship was good with the exception of the ventilation, the deficiency of which, however, it is said, was not noticeable when there was no overcrowding. No illness was traceable to food or water or to the ship itself.

U. S. S. Philadelphia.—The health of the ship during the year was very good. Few cases of serious illness and no epidemics occurred on board. Being moored off the wharf built for the ship, in deep water, with strong tidal currents to carry away the sewage, and with a prevailing wind coming across a mile of salt water, the external conditions were favorable. The sanitary conditions on board were equaly favorable, being kept so by constant care. The excellent fresh-water supply, good food well prepared, good natural ventilation, with a large amount of air space not overtaxed, and general cleanliness, all combined to minimize sickness. The average complement was 228.44; the total sick days, 446; and the percentage of sick, 0.55. The number of men examined for enlistment was 490, of whom 131 were rejected for various causes.

U. S. S. Independence (and auxiliaries).—The health of the command was excellent, no epidemic having occurred and a minimum of serious cases recorded. The average complement for the year was 670.71; the total number of sick days, 355; and the percentage of sick, 0.602. The sanitary condition of the ship was excellent, and no illness was traceable to food or water. Thorough sanitary measures were in operation, and prophylactic supervision was painstakingly carried out. The total number of men examined for enlistment was 646, of whom 168 were rejected for various causes.

YARDS AND STATIONS (OTHER THAN TRAINING STATIONS) WITHIN THE CONTINENTAL LIMITS OF THE UNITED STATES.

In view of the growing importance which matters relative to health at the various navy-yards and stations are coming to assume and the increasing necessity of less restraint in and larger control of sanitary and medical operations, the bureau is constrained to recommend that all navy-yard and station sick quarters and dispensaries and all sanitary and medical work, including ambulance services and emergency treatment of civilians at yards and stations, be absolutely under the control of and performed by the Medical Department. There is need of incinerating and disinfecting plants at all yards, and sufficient money should be appropriated to carry on general sanitary work.

Navy-yard, Portsmouth, N. H.—The sanitary condition and health record for the year was excellent. The number of cases admitted was 87 out of an average complement of 134.21. There was a total of 533 sick days; percentage of sick, 1.10 plus. The disease causing the greatest number of admissions (11) was epidemic catarrh. There was no epidemic, no disease attributable to unsanitary causes, and nothing to indicate the existence of any morbific influence peculiar to the station. Notwithstanding that last winter was considered to be a severe one, there were comparatively few cases of sickness that would be favored by such a condition. Nor did any disease occur which could be traced to the water. All natural sources of supply were tested chemically and there were no impurities to suggest contamination.

During working hours through the year a number of minor and several severe injuries occurred. All cases were attended by a medical officer.

Navy-yard, Boston, Mass.—The health of this yard during the year 1907 was good. The average complement was 480; total sick days, 913; and percentage of sick, 0.52. Ninety-nine cases were transferred to hospital; 19 were invalided from the service on approved recommendations of the boards of survey; 1 was invalided to the Government Hospital for the Insane. There were no deaths. Nine cases of measles, 1 of typhoid fever, and 9 of grippe constitute the total of infectious or contagious diseases that occurred. The record for the year shows nothing to indicate the existence of any morbific influences peculiar to the station.

The work performed at the dispensary was necessarily quite important, for surgical emergencies constantly occurred. There was an average of 2,400 civilian employees during the year, and among these there were 476 cases of injury. Those more seriously hurt, requiring hospital care, were transferred immediately by civilian ambulance. In 358 cases dressings were applied and, though many of these came under what is usually called first aid, they were, in the vast majority of those treated, permanent in character.

The poor ventilation of the marine barracks pointed out last year is again the subject of condemning comment by the medical officer. This constituted a serious defect, but otherwise the barracks were in satisfactory sanitary and hygienic condition and were kept clean. The prison at the yard will be mentioned elsewhere.

On the whole, the sanitary condition of the yard was good, but the drainage system and surface drainage are defective, and, through the deficiency of one or the other, the cellars of several of the buildings contain a varying amount of water. These matters need remedial attention, as do also the defective water-closet and washing facilities for the crews of ships in dry dock.

Naval torpedo station, Newport, R. I.—The general health of this station was excellent. No disease occurred epidemically, despite the fact that in former years, upon the arrival of the seaman gunner class in March, an epidemic of measles has been the rule. Nine cases of grippe in a mild form occurred during the month of December. The average complement was 226.03; the total sick days, 573; and the percentage of sick, 0.615. No deaths occurred.

The civilian workmen on the station average about 195 daily, and during the past year 22 received surgical treatment for injuries sustained. In addition to these, 17 of the 95 men daily employed by the contractor building the new torpedo factory received surgical treatment for injuries sustained in their work.

The general sanitary condition of the station, both grounds and buildings, was excellent, and a number of improvements of a hygienic nature were made—three 18-inch Globe ventilators were placed in the roof of the seamen gunners' quarters, the lavatory facilities were renewed and their capacity increased, and the sewage system was overhauled and put in excellent order.

The water supply of the station has been the subject of voluminous correspondence. In January, 1907, the south well was permanently closed and the pump removed, it having been found by a series of analyses that the water was permanently polluted. The only source of water is Newport, and from there it is piped across the harbor. At no time during the past twelve months has the quality of the water been such that boiling before drinking could be safely dispensed with. Experience has clearly indicated that a distilling plant should be installed at this station, as has been recommended before. To be absolutely dependent upon Newport for water, particularly as that water is of more than questionable quality, places this station in a position of possible serious danger to health.

Navy-yard, New York, N. Y.—The general health of this yard has been good, and there has been no contagious or infectious disease among the enlisted force, with the single exception of one case of diphtheria, which occurred at the marine barracks. A few cases of scabies occurred, but most of these were among recruits. The average complement of the barracks was 420: admissions to the sick list, 271; transferred to hospital, 80; and condemned by medical survey, 19, all of the latter being for disability existing prior to enlistment.

During December a mild epidemic of grippe prevailed among the officers and their families. A large number (1,679) of the civil employees of the yard received emergency surgical and medical treatment at the dispensary. Of these, 33 were sufficiently serious to be removed to hospital in the yard ambulance, and though there were no immediate fatalities from accidents, two cases died in a few hours after reaching the hospital.

The sanitary condition of the yard and buildings was good, and there was no evidence of the existence of any disease influence peculiar to the station.

Navy-yard, Philadelphia, Pa.—The general health during the year was good. There were 286 admissions to the sick list, with a total of 1,169 sick days. Twenty-three of the admissions, however, were for the purpose of record only, being recruits who were surveyed and discharged from the service for physical disqualifications which existed prior to enlistment. Among the admissions for general infectious diseases 40 are worthy of notice: Two cases of typhoid both contracted in Philadelphia; 2 cases of diphtheria, contracted in Philadelphia; 9 cases of malaria, all recurrent, and all but one contracted on the Isthmus of Panama; 6 cases of pneumonia, attributed to overcrowding; 2 cases of measles, directly traceable to exposure on board the *Kearsarge;* 17 cases of grippe, contracted in Philadelphia; 1 case of mumps, contracted at the training station, Norfolk, Va., before being transferred, and one case of cerebro-spinal meningitis, contracted in Philadelphia. It is a cause for congratulation that this latter disease did not gain a foothold in the barracks, which were overcrowded. There was no sickness to indicate the existence of any morbific influence peculiar to the station, though it is well known that the conditions were ideal for the prevalence of malaria, and the anapheles is reported to have been found.

Much work has been done in the antimalarial campaign at this yard through the efforts of Surg. Oliver Diehl, and in other directions, both in respect to the grounds and buildings, much sanitary progress has been made, and in view of the important position which the yard is destined to occupy it is hoped that improvement along this line will be pushed without interruption.

During the year 290 surgical and 10 medical cases among the civil employees received emergency treatment at the dispensary. Of these 9 surgical and 2 medical cases were sent to hospital and 1 case (apoplexy) died in the yard.

Naval Academy, Annapolis, Md.—The general health of this station for 1907 was very good. The total number of sick days for the year amounted to 5,907, for an average complement of 1,321. As compared with the previous year, this is an increase of 251 in number of sick days and 34 in the average complement. The daily average of patients for the year was 16.18 plus, no allowance being made for the four summer months, during which the first and third classes were away from the academy. Part of the second and fourth classes were out in the bay all the time during the summer and the second class was on leave in September. The principal causes of disability concerned in the foregoing summary and arranged according to the greatest number of sick days were: Diseases of the digestive apparatus, 419 cases and 1,227 sick days; injuries, 171 cases and 1,122 sick days; general infectious diseases, 295 cases and 949 sick days; and genito-urinary diseases, 111 cases and 819 sick days.

Of infectious diseases there were recorded 229 cases of catarrhus epidemicus, with 656 sick days; 15 cases of diphtheria, with no sick days, patients being sent to hospital; 4 cases of febris enterica, 3 of which were sent to the hospital, 66 sick days; 4 cases of febris intermittens, 3 of which were sent to hospital, 10 sick days; 3 cases of febris pneumonica, all sent to hospital.

Four deaths occurred: One midshipman from rheumatism articularis acutus (this midshipman died at his home and his name does not appear on Form K for the quarter in which he died, nor upon the abstract of patients for that quarter); 1 midshipman from asphyxia ex submersione; 1 cabin steward from œdema pulmonalis; and 1 musician, second class, from pyemia.

During the year 189 cases were invalided to hospitals—1 to the Washington hospital and the balance to the Annapolis Hospital—13 from the service, and 13 on sick leave.

The threatened epidemic of diphtheria in December was satisfactorily controlled by prompt action and radical measures.

The daily life of the midshipmen was very carefully supervised from a hygienic point of view, as well as in other ways. The food, ventilation, clothing, and bathing facilities were apparently excellent, and every possible effort was made to keep them up to a high standard. All water used is furnished by an artesian well on the grounds, and recent analysis shows the quality to be excellent.

The grounds and buildings were kept in excellent sanitary condition, and improvement in this respect keeps pace with the progress in building and the work of putting the academy inclosure in order.

The health of the marine barracks at this station was on the whole good, though many recruits were sent to the hospital for survey and discharge from the service on account of defects which existed prior to enlistment. There is need of improvement in the ventilating and heating provisions in the barrack building, and this was strongly emphasized during the late threatened epidemic of diphtheria, which had its inception among the marines.

The health and sanitary record of the station ships and those which were at different times and for various periods in reserve at this station is on the whole satisfactory.

Navy-yard, Washington, D. C.—The general health at this yard was excellent and there was no sickness which indicated any morbific influence peculiar to the station. The average complement for the year was 319; the number admitted to the sick list, 890, and the percentage of sick, 0.76. The only cases of the general infectious class of diseases among the enlisted force were one of measles and one of mumps. Four cases of measles and one of diphtheria occurred in officers' families, measles being confined to one house and diphtheria to another. The usual precautions were observed to prevent dissemination and proved effective.

The yard was kept remarkably clean and neat, as heretofore, and its sanitary condition was exceptionally good. The buildings and toilet accommodations have on the whole satisfied hygienic requirements, a number of necessary improvements having been made; others are in progress. The defect in the ventilation of the main foundry, which was pointed out in the report for 1907, is still in urgent need of remedial attention.

The average number of civil employees in the yard was about 4,000. Emergency dispensary treatment was given to 575 surgical cases and 256 medical cases. There were four deaths.

The number of applicants examined for enlistment was 345, of which 137 were rejected for various physical disqualifications. The number examined for "minors-under-instruction" was 192, of which 52 were rejected.

Naval proving ground, Indian Head, Md.—The health of this station was in the main excellent, owing largely, it is believed, to the sanitary improvements, particularly the campaign against mosquitoes, which has been in progress for the past few years. Malaria, which is epidemic and very prevalent throughout the surrounding country and which was previously very common on the station, did not manifest itself in the personnel of the station. Both mosquitoes and fleas have been greatly reduced by sanitary measures, and the reservation is in excellent condition. Only two serious cases of illness occurred—one of rheumatism and one of typhoid. The latter was definitely traced to foreign origin and did not spread on the station. In the powder factory only a few accidents, such as acid burns, occurred, and these were only trivial, owing to the fact that material and instructions for prompt first aid were placed in all buildings where acids are handled. The water supply and sewage system are reported as excellent.

Navy-yard, Norfolk, Va.—The health of this yard for 1907 was satisfactory, but there is in the sick record evidence that malaria originated at the station, and is a disease influence which may be active at this station and is to be guarded against by the well-known measures, particularly as marines are so often transferred there from tropical service. Seventy-one cases of the disease were admitted, 15 of which seem to have originated on the station. Other important diseases were grippe, measles, typhoid fever, mumps, and cerebrospinal fever—all infected outside of the yard. Venereal diseases were quite prevalent. The average complement was 550; the number of admissions, 692, and the percentage of sick, 2.07.

The improvement along sanitary lines has not been in accord with the needs or kept pace with the additions to the establishment and its growing importance, and the sanitary conditions of the grounds and buildings were not what they should have been. Medical Inspector S. H. Dickson has made detailed reports on this question.

About 150 sick and injured civil employees were given emergency treatment at the dispensary. Of these, nearly one-third were surgical cases, and some of them were quite serious in character.

The number examined for enlistment in the Marine Corps was 43, of which 16 were rejected; the number received from marine recruiting stations and reexamined was 511, of which 52 were found physically disqualified for service.

The marines constitute by far the largest part of the enlisted force of the station, and the vacation of the old dilapidated barracks and the occupancy of the new was a change of great hygienic importance;

but as the new barracks is outside of the yard wall and some distance away on the Schomole tract the transfer involves greater demand upon the medical department of the yard. Sick quarters for emergency treatment were provided in the new structure and these were equipped and two hospital corps men assigned to duty at the barracks under the medical officer of the yard who makes daily visits and is subject to call.

Naval station, Port Royal, S. C.—During the year 1907 the general health of the detachment of marines and the crew of the steam launch, which, with the hospital steward, comprise the complement of the station, was good. There were only 13 admissions to the sick list—none for serious cause. The sanitary condition of the station was good, the greatest consideration toward the maintenance of health having been measures to prevent infection with malaria, which is endemic in this section of the country.

Navy-yard, Charleston, S. C.—There is little of sanitary interest to report in connection with this yard. During the year it was largely in the hands of contractors. There was a marked increase of malaria as compared with the record for 1906, but otherwise the health of the officers and enlisted force was very good. Sanitary improvements made during the year were largely antimalarial in character.

Naval station, Key West, Fla. (Dry Tortugas).—The health and sanitary condition of this station were exceptionally good. No sickness of any importance occurred and the sanitary measures were largely antimalarial in character.

Navy-yard, Pensacola, Fla.—The health of the yard has been very good during the year. No epidemics occurred and the only sickness worthy of mention was 4 cases of typhoid and 3 of malaria, none of which originated at the yard. There were 72 admissions, 226 sick days, and the percentage of sick was 1.736. The sanitary condition of the yard was as good as possible in the absence of a good water supply for all purposes and sewers and proper bathing facilities for the enlisted force. The water supply is still a problem and the dependence of the yard is still upon rain water, as the two artesian wells which have been sunk did not result in potable water.

Naval station, New Orleans, La.—The health of this station was very good. There were only 28 admissions, giving a total of 485 sick days. The work of the medical department was largely that of sanitary supervision and antimosquito work, the mosquito-borne diseases (malaria and yellow fever) representing the particular menace to health at this station. Much was accomplished in this direction of sanitary improvement within the limits of available funds for the purpose, and this work is progressing in respect to buildings and grounds.

Navy-yard, Puget Sound, Wash.—The health of the yard and station was excellent and there was no epidemic of communicable disease among the enlisted personnel. There were 91 admissions, giving 143 sick days. There were, however, in the household of the gunner five cases of diphtheria, all of which recovered under antitoxin treatment, and no secondary foci developed.

Among the large force of civil employees 170 cases were treated at the dispensary, and of these 169 were surgical in character as the result of accidents.

The grounds were kept in sanitary condition, and all the buildings except the marine barracks were hygienically satisfactory. The marine barracks is inadequate in size and in its overcrowded state ventilation was poor.

Navy-yard, Mare Island, Cal.—The health of this yard has been very good and no epidemic diseases have prevailed. There were 278 admissions, giving 1,857 sick days. The sanitary condition of the yard was good, and the only matter of interest in this connection during the year was the appearance of plague on the west coast. When it was reported that bubonic plague existed in San Francisco precautionary measures were drawn up and distributed among the various departments and residences of the island, with the result that a reduction in the number of rats was noticeable. Owing, however, to the construction of the numerous outhouses and stables it would be a difficult if not impossible undertaking to exterminate these rodents, and probably nothing short of completely removing these old buildings, together with rat-proofing all other structures and carefully carrying out certain specific sanitary measures, would meet the requirements of the case. To effectively carry out these plans necessary to protect against the invasion of plague would probably involve the expenditure of a large amount of money, but Mare Island may at any time be exposed to the same danger that was incurred by the recent outbreak of the disease on that coast.

During the year the daily average number of civil employees was 2,036. This force contributed 847 surgical cases, which were given emergency treatment at the dispensary. There were a number of serious accidents, and in five cases the injuries resulted fatally.

STATIONS BEYOND THE CONTINENTAL LIMITS OF THE UNITED STATES AND STATION SHIPS.

The need of sanitary supervision of these stations is well known, as all of them have a tropical or subtropical location, and represent exposure to peculiar disease influences and trying conditions of climate. The material hygienic necessities at these stations follow as a direct consequence, and embrace such provisions as screening and bakery and laundry facilities, the importance of which were pointed out in the preceding report.

San Juan, P. R.—The health of officers and men at this station during the past year was excellent. No epidemic occurred and few were admitted to the sick list. But one case of typhoid fever developed among the personnel of the station and that in a man who, in disobedience of orders to drink no unboiled water, had, when on liberty in San Juan, drunk freely of the city water. It was an object lesson to the rest of the command and by contrast showed the efficacy of the use of distilled water as a precautionary measure. There was a great decrease in the number of cases of venereal disease as compared with previous years.

The sanitary condition of the station was excellent, except that the flow in the sewerage system is occasionally too sluggish, due to the low elevation of the station and the small rise and fall of the tide.

Culebra, P. R.—The health of this station was excellent, no disease of particular importance having developed. With an average complement of 48, there was a daily average of 1.539 patients, giving a total of 572 sick days for the year. Malaria and venereal diseases were the most prevalent, as heretofore. The sanitary condition and the hygienic features of the life of the station are much as reported last year and are still in need of improvement in respect to water, ice, food, habitations, sewerage, and sick quarters.

At present the junior medical officer of the station has an agreement with the Porto Rican government whereby he cares for all sick natives. He is also health officer of the island. This arrangement is very beneficial to the personnel of the station, as infectious and contagious diseases are at once diagnosed and properly treated. According to his report, minor surgical affections, asthma, bronchial diseases, tuberculosis, dengue, malaria, intestinal parasites, and venereal diseases have occurred, but there was but one case of tuberculosis, and the four latter were not frequently observed. The *Alliance* was kept in satisfactory sanitary condition throughout the year, and her health record is excellent. With an average complement of 90.25, there was a daily average of 1.539 patients, giving a total of 707 sick days. As at the station, malaria was the disease of greatest prevalence. During the year a mild epidemic of measles (9 cases) developed on the ship, but was quickly stamped out.

Guantanamo, Cuba.—The health of the naval contingent, civil employees, and laborers of this station was excellent, and the sanitary condition of the station was greatly advanced by various improvements, notable among which is the large amount of clearing and drainage that was done, especially at the target range. This work was so well done that malaria has practically disappeared, a state of affairs in strong contrast to that reported last year. While the health of the enlisted force was good, there are other features of the life at the station, such as happiness and contentment, which demand consideration as bearing directly upon efficiency, and the question of provisions to this end is especially urgent at this isolated station. The *Monongahela* was not satisfactory from a hygienic or sanitary point of view as a station ship.

Honolulu, Hawaii.—The health of this station has been very good, and very little serious illness among the enlisted force of the station has occurred. The sanitary condition of the public buildings, station ship, and grounds is generally good, and there seems to be no peculiar morbific influence. The medical officer of the station must, however, be always on the alert for sporadic cases of bubonic plague and recommend proper precautions for the protection of the naval contingent, as the disease seems to be endemic among the oriental and native population of Honolulu. The local board of health has done and is doing much to make the city healthful, but report indicates that politics may hamper the sound judgment of wise men and constitute a danger to public health and the army and navy, should that city at any time be occupied by a large force, and might necessitate Federal intervention.

Guam, Ladrone Islands.—A detailed report on this station was made by the senior medical officer, Surg. F. E. McCullogh, in which he discusses climate, sanitary progress, vital statistics, prevailing diseases, research work, sanitation of the island, medical services to the natives, hospitals, dressing stations and naval forces, which latter includes consideration of health, hygiene and sanitation, dental work, and station ship. It is a valuable report, detailing the work in the interest of health which the navy is carrying on at this isolated place, and showing the greatly improved conditions on the island which have resulted therefrom. It must here suffice to say that disease is less prevalent, that the rate of mortality has been strikingly reduced, and that the balance between the birth and death rate during the past year was in favor of the former by 25 per cent. The report will be published in full in the Naval Medical Bulletin.

The health of the naval force. considering the location of the station, may reasonably be considered to have been fair. With an average complement of 129 there were 115 admissions to the sick list, giving a total of 1,851 sick days. The largest part of this sick record is to be attributed to gonorrhea, contracted in Japan. Of the 115 admissions, above noted. 30 may be assigned to tropical service. The most unfavorable feature of this station is its extreme isolation and the continued segregation from a normal environment. The general sanitary conditions are good and the life is so ordered that there is a minimum of exposure to the sun and other tropical climatic influences.

The station ship *Supply* reports nothing worthy of comment except that the health and sanitary conditions were very good. The average complement was 165, with a daily average of 2 patients.

Tutuila, Samoa.—The sanitary condition of this station during the year was good, although on June 3 several landslides occurred within the limits of the station, which in connection with unusually heavy rains and the overflow of the reservoir from a landslide, either cut out or filled in with débris all the ditches and drains. This necessitated the reditching of the whole station. The drainage is said to be fairly good at present, and no breeding places for mosquitoes exist within the station limits.

The government buildings, with the exception of the hospital, are in a fair state of repair and sanitary condition, and the quarters occupied by the commandant are particularly well located, well built, airy and in every way suitable to the climate, and sanitary. The quarters erected in 1905 are to be criticised as insufficiently elevated above the ground to prevent dampness, and, being built as a double house, each is deprived of air on one side, a matter of serious import in the Tropics. In future construction, cognizance should be taken of these defects, and the desirability of tile instead of iron roofing should be considered.

The building used as a hospital is the oldest, most dilapidated, and most insanitary building on the station, and the need of a new structure was more than ever recognized during the past year. The new operating building was completed during the year and the report of operations, including 232 cases of varying gravity, shows the utility of this provision. There was also a great deal of medical work to be done among the natives, and many cases of disease (15 to 20 per day) were treated at the hospital. The hygienic and sanitary instruction of the natives has been fruitful of good results. The greatest danger to the natives is the activity of "devil doctors," but through the action of the governor in suppressing the most prominent of this class, it is hoped that the natives may be gradually brought to see the danger of submitting to their peculiar treatment.

During the year 1907 there were 217 births and 237 deaths; while during the months of November and December the births were 43 and the deaths 62. This unusual mortality is only partially explained by the prevalence of an epidemic of pertussis, which accounted for a rather high infant mortality.

During the two months above mentioned the mortality was heaviest in the islands of the Manua group—11 births to 26 deaths.

The medical officer expects to make a trip through the islands of this group in the near future, and an effort will be made to ascertain the cause of the high death rate.

A significant fact gathered from the reports is that the district of "Falelima East," in which the naval station is located, and where the natives have easy access to proper medical treatment, was the only district in which, during December, the deaths did not exceed the births, the death rate in that district being about 80 per cent lower than in any other.

Up to May 22 the *Adams* was station ship at Tutuila, when she was relieved by the *Annapolis*. The health and sanitary condition of the former were very good, as was the sanitary condition of the latter. The per cent of sick on the *Annapolis* was unusually high for Samoa, which was in part due to the fact that the crew suffered considerable illness before it became acclimated and also to the fact that in November the station was visited by a small epidemic of Leichtenstein's nervous form of influenza.

Cavite, P. I.—The sanitary condition of this station during the year was excellent, and on the whole the health was good. The average daily complement of the station was 627. There were 748 admissions and 3,181 sick days; the principal diseases, in order of greatest prevalence, being dengue and malaria. There were 280 cases of the former and 156 of the latter disease. But infection with malaria is reported as extremely rare at Cavite and nearly all of the above cases contracted the disease at Olongapo. Other diseases of the general infectious class represented in the admissions to the sick list were smallpox and measles. Cholera was epidemic in Manila from August, and a few sporadic cases, with several deaths, appeared in Cavite and San Rogue. No cases occurred at the station, but the disease is a constant danger to the naval community and requires the utmost vigilance on the part of the medical officer to prevent its invasion. Amœbic infection is also a constant menace to the health of this station. Various sanitary improvements were effected and recommendation for others has been made, which latter include a laundry, bakery, and new dispensary.

There were 241 accidents and medical emergencies among the yard workmen, which were treated at the yard dispensary during the year. None of them was serious and no deaths occurred.

Olongapo, P. I.—The general health and sanitary condition of this station were good during the year. The average daily strength of the station was 741.55; the daily average of sick, 14.234; and the percentage of sick, 1.92. Malaria and dengue were the principal diseases causing admissions to the sick list, and they were responsible for nearly one-half the total sick days (5,282). A small epidemic of measles occurred during November and December, the disease originating in Olongapo. Other diseases of the general infectious class occurring during the year were smallpox, dysentery, rheumatism, and tuberculosis. There were no deaths at the station during the year.

MARINE HEADQUARTERS AND MARINE DETACHMENTS.

Of course the first requisites of these posts or camps are careful, persistent, and consistent attention to the hygienic side of the men's lives and the sanitary condition of the quarters and grounds, according to the circumstances of climate and particular morbific influences of the locality. But there is also need of providing means for healthful diversion during leisure hours, and, depending upon the degree of isolation of the various commands and the prevalence of disease in the surrounding country, such provisions have a hygienic bearing of greater or less importance, and should in no instance be neglected.

Marine barracks, Washington, D. C.—The health and sanitary condition of this post during the year 1907 was very good. The average complement was 352; the number of admissions to the sick list, 636, and the total sick days, 2,404. Infectious and contagious diseases among the men were few. The recruits, owing probably to the change of life incident to military service, contributed largely to the sick record, particularly tonsilitis and grippe, though every precaution relating to the hygienic condition of their sleeping quarters was observed. At one time the barracks were very much overcrowded, owing to the constant arrival of recruits, but fortunately no epidemic disease made its appearance. During the year 2,294 physical examinations and reexaminations were made. Two hundred and nine were transferred to hospital, the larger number being for disabilities, principally defective vision, which existed prior to enlistment. Since the report for 1907 was submitted, the medical department has moved into ample and well-equipped quarters in the new barracks building.

Camp Columbia and outposts, Cuba.—The health of this command has been remarkably good, and by dint of careful supervision and constant vigilance on the part of medical officers and the prompt active cooperation of commanding officers, the various posts were kept in good sanitary condition. All the usual precautions to protect health have been observed, and every practicable sanitary measure has been employed. The food was good, all water for drinking purposes was sterilized by the Forbes field sterilizer, and all garbage was burned in McCall incinerators. There was no incident in the history of this command, from a hygienic point of view, which deserves special comment. There were no epidemics, and the minimum of sickness occurred, venereal and parasitic skin diseases being the most common. The number of admissions for all causes was 702, and the total sick days, 5,622. The services of a competent dentist were greatly needed. The medical service was rendered by 8 medical officers and 18 enlisted men of the Hospital Corps of the Navy. One officer was assigned to each post with the exception of Nueva Gerona, at which place there was a detachment consisting of but 1 officer and 25 enlisted men. The medical service at this post was rendered by a hospital steward and 1 hospital apprentice, and this provision proved satisfactory, as in serious emergencies the commanding officer was authorized to secure the services of a Cuban physician.

Camp Elliott, Isthmian Canal Zone.—The general health of this commands has on the whole been good, though not as satisfactory as might be expected and should be possible. The average strength of the command for the year was 182; the total number of sick days, 2,732, and the daily average of patients, 7.48, which is about 50 per cent higher than the morbidity ratio per 1,000 reported by the chief sanitary officer of the Canal Zone, not excepting the record of Bas Obispo itself, which is adjacent to the camp. Out of a total of 507 admissions and readmissions to the sick list 378 cases were for malaria. Of these the greater number were admitted during the first five months of the year, the period of least rainfall, and when comparatively little quinine was taken as a prophylactic measure against this disease. The high morbidity rate at this station due to malaria was commented upon in the report for 1906, and the same causes there set forth seem to have been influential during the past year. Every measure to safeguard the health of the command was employed, and the camp is reported to have been in good sanitary condition, though many improvements in quarters and living conveniences are necessary. Two deaths occurred—one a suicide and the other a railroad accident. Three cases of malaria, 2 of tuberculosis, 3 of venereal diseases, and 2 of nervous diseases were transferred to the United States.

Sitka, Alaska.—The health record of this command, numbering about 50 strong, rank and file, was excellent. There were but 27 admissions to the sick list, giving a total of 504 sick days. No serious illness occurred, except of 1 case of tuberculosis, and but 1 death from drowning. The sanitary condition of the post was excellent.

Midway Islands, North Pacific.—The general health of this detachment was very good. There were only 9 admissions to the sick list, giving a total of 80 sick days, and there was no case of serious illness or epidemic disease. The sanitary condition of the post was excellent, and nothing in the life of the detachment, save the lack of fresh food, was at all inimical to good health.

Polloc, P. I.—The health and sanitary condition of the post was excellent, no diseases having occurred epidemically. There were 33 admissions, giving 295 sick days. Malaria was the greatest cause of morbidity. On account of Asiatic cholera among the Natuan River and Bacolod Moros a strict quarantine was established at the post against the surrounding country on December 27. Proper precautions against the invasion of the disease were taken. When the quarantine was declared the native enlisted men who had been living at their homes were quartered inside the station. No case of disease developed in the detachment, and on January 3, 1908, quarantine was raised.

Legation guard, Peking, China.—During the past year cholera, smallpox, and typhoid existed in the garrison from which there were 2 deaths, 1 from smallpox and 1 from cholera, and the former in spite of repeated vaccination. The disease was suspected before the eruption appeared and was isolated, and no other case followed. The case of cholera was very rapidly fatal, and prompt and thorough disinfection probably averted the spread of the disease.

Outside of the legation guard compound in Peking no effort is made to prevent the spread of infectious and contagious diseases, and such surroundings, of course, constantly menace the health of the command and call for untiring sanitary vigilance by the medical officer. But one case of serious illness, a case of typhoid, was traced to the summer camp at Tung Shan. During the year there were 103 admissions to the sick list, giving a total of 1,433 sick days and 3.27 as the percentage of sick. The sanitary condition of the garrison was good, and the hygienic provisions were adequate.

HOSPITALS.

Every hospital is a school of medicine to its staff and, indirectly, to the Medical Corps as a whole. Moreover, as in the past at these institutions the instruction of nurses has been continued.

The administration of the hospitals is conducted with economic prudence. Great care is observed that there shall be no waste of foodstuff and that it shall be properly cooked and served, but the commissary department is defective and is the weakest part of our hospital system. There should be a commissary steward who understands the purchase and care and serving of food and is generally suited for the duties and properly trained, to have entire charge of and make a daily study of the food question, in order that the supply and disposition may be regulated according to actual needs. It is believed that by this method an appreciable saving would result. In this connection also it has been the bureau's opinion for some years that efficiency, discipline, and economy would be gained if cooks at naval hospitals could be enlisted instead of being hired civilians, as at present.

If cooks were enlisted better discipline could be maintained and we should not suffer from losing this important factor without due notice. The present high wages in some parts of the country and the great demand for help of this kind make it almost impossible at times to secure this class of service.

Enlisted cooks at the navy rate would be in the line of economy in almost every instance. If it is possible, the bureau would like to make a trial of enlisted cooks, with a view to improving the commissary department of hospitals, and for the better care of the sick. It is also considered that the experience and training had in the hospitals would fit them for better service in this line on board ship.

In the interest of economy it would be well to transfer the care of the Naval Home, Philadelphia, to the bureau of medicine and surgery in connection with the naval hospital at that place. The number of inmates is materially decreasing and, as most of them are physically or mentally dependent and constantly in need of medical supervision, their care largely devolves upon the medical staff of the hospital. The hospital and home are so nearly allied in the nature of the duty required to conduct them that it would seem specially fit that these two institutions should be operated in conjunction under the charge of the Medical Department, and, if so operated, one organization would be much cheaper, more efficient, and less cumbersome than is the present double system, involving as it does separate power plants, separate civilian forces, separate commissaries, etc. In this connection it is to be noted that the home was originally planned as a naval hospital. The need of hospital expansion could be easily met and the whole institution benefited by this change.

Portsmouth, N. H.—The demand upon this hospital was not in excess of its capacity. The new prison has, however, increased the necessity for ample hospital provisions at this place. There were 171 patients under treatment at this hospital during 1907, a considerable decrease from 1906, and of this number 41 were surgical cases. The operations included 18 of major and 5 of minor character. All were performed with good results. The medical service included 130 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the genito-urinary apparatus and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 3 deaths.

Chelsea, Mass.—There were 718 patients under treatment at this hospital during 1907, a slight decrease from 1906, and of this number 289 were surgical cases. The operations included 65 of major and 110 of minor character. All were performed with good results, except in 2 cases which died. The medical service included 429 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the genito-urinary apparatus and of the general infectious class. The professional work done at this hospital was satisfactory. There were 8 deaths.

Newport, R. I.—There were 1,219 patients under treatment at this hospital during 1907, a slight increase over 1906, and of this number 269 were surgical cases. The operations included 96 of major and 98 of minor character. All were performed with good results, except in 1 case which died. The medical service included 950 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the digestive, respiratory, and genito-urinary apparatus, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 11 deaths.

New York, N. Y.—There were 1,209 patients under treatment at this hospital during 1907, a decrease from 1906, and of this number 361 were surgical cases. The operations included 114 of major and 125 of minor character. All were performed with good results, except in 2 cases which died. The medical service included 848 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the nervous system, the nutritive, respiratory, motory and genito-urinary apparatus, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 15 deaths.

Philadelphia, Pa.—There were 630 patients under treatment at this hospital during 1907, a slight decrease from 1906, and of this number 131 were surgical cases. The operations included 16 of major and 53 of minor character. All were performed with good results. The medical service included 499 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the digestive and genito-urinary apparatus, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 11 deaths, the largest number of which were among inmates of the Naval Home.

Annapolis, Md.—There were 321 patients under treatment at this hospital during 1907, which is the first year that it has been in operation. Of this number 94 were surgical cases. The operations included 32 of major and 34 of minor character. All were performed with good results. The medical service included 227 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 4 deaths.

Washington, D. C.—At the old hospital there were 224 patients under treatment during 1907, a considerable decrease from 1906, owing to the commissioning of the Naval Medical School Hospital. Of this number 11 were surgical cases. There were no operations performed. The medical service included 213 cases of various diseases, though largely of the general infectious class and of the genito-urinary apparatus. The professional work done at this hospital during the year was satisfactory. There was no death.

At the Naval Medical School Hospital there were 354 patients under treatment during 1907, which is practically the first year that this hospital has been in operation. Of this number 113 were surgical cases. The operations included 35 of major and 51 of minor character. All were performed with good results, except in 2 cases which died. The medical service included 241 cases of various diseases, many of which were of serious character, and the greatest numbers of admissions were for diseases of the visual, digestive, and motory apparatus, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 3 deaths.

Norfolk, Va.—There were 1,546 patients under treatment at this hospital during 1907, an increase over 1906, in spite of the fact that it was undergoing renovation, and of this number 291 were surgical cases. The operations included 51 of major and 99 of minor character. All were performed with good results, except in 1 case which died. The medical service included 1,255 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the nutritive, respiratory, and genito-urinary apparatus, for diseases of the nervous system, and for diseases of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 30 deaths.

Port Royal, S. C.—There were only 6 patients under treatment during 1907. All were benign in character and there was no death.

Pensacola, Fla.—There were 53 patients under treatment at this hospital during 1907, a considerable decrease from 1906, owing to the absence of the fleet from southern waters and the transfer of a large number of patients to the naval hospital, Las Animas. Of this number 10 were surgical cases. The operations included 2 of major and 6 of minor character. All were performed with good results. The medical service included 43 cases of disease, largely of the general infectious class (14 of tuberculosis). The professional work done at this hospital during the year was satisfactory. There was no death.

San Juan, P. R.—There were 161 patients under treatment at this hospital during 1907, a considerable decrease from 1906, owing to the absence of the fleet from West Indian waters. Of this number 32 were surgical cases. The operations included 10 of major character. All were performed with good results, except in 1 case which died. The medical service included 129 cases of various diseases, and the greatest numbers of admissions were for diseases of the digestive and genito-urinary apparatus, of the nervous system, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There was 1 death.

Sitka, Alaska.—There were 35 patients under treatment at this hospital during 1907, a slight increase over 1906, and of this number 6 were surgical cases. No operations were performed. The medical service included 29 cases, principally of diseases of the genito-urinary apparatus and of the general infectious class. There was 1 death.

Puget Sound, Wash.—There were 182 patients under treatment at this hospital during 1907, a slight increase over 1906; and of this number 63 were surgical cases. The operations included 11 of major and 24 of minor character. All were performed with good results, except in 2 cases which died. The medical service included 119 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the digestive and respiratory apparatus and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 5 deaths.

Mare Island, Cal.—There were 922 patients under treatment at this hospital during 1907, an increase over 1906, and of this number 186 were surgical cases. The operations included 40 of major and 45 of minor character. All were performed with good results. The medical service included 736 cases of various diseases, many of which were serious in character, and the greatest numbers of admissions were for diseases of the respiratory apparatus, nervous system, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There were 11 deaths.

Las Animas, Colo.—The bureau's report for 1907 presented a study of tuberculosis in the navy in its various aspects, and discussed in extenso the history of an unfaltering, increasingly persistent effort by the Medical Department of the Navy to make such ample and proper provisions for the care of the victims of this insidious disease as would offer fairest promise of recovery to the individual and, by prompt and effectual segregation of cases, protect the rest of the service from the danger of its dissemination. The story of the earnest search throughout the country for a site which would be at once suitable and available to the purpose in view was narrated, and the reasons which led to the selection of New Fort Lyon from among all other places inspected, together with a description of the physical and meteorological characters of the reservation and the steps taken to secure its transfer for naval sanitarium purposes, up to the final action of the President, were all set down in chronological sequence, constituting an important opening chapter, it is believed, in the record of the part which the navy is destined to play in the world's campaign against tuberculosis.

Up to June 30, 1907, the end of the period embraced in the bureau's last report on this new station, little had been accomplished toward lifting the property out of its many years old state of delapidation to one of comfortable, health-giving habitability. Too little time had elapsed since the transfer had been made for a more substantial showing in that respect than pioneer work in the rehabilitation of some of the old buildings, etc., but the plans were practically complete, as outlined in the report of 1907, and in accordance with these, the work of renovating, remodeling, new construction, and general transformation, together with equipment and organization, has been carried on with remarkable and gratifying rapidity, owing to the enterprise with which the Bureau of Yards and Docks has pushed its part of the undertaking, and the executive ability which Medical Inspector Hibbett has shown in his supervision of the development of the institution and in placing it on an efficient running basis. Much in all directions still remains to be done before the bureau's ambition in regard to this sanitarium can be fully realized, but the record of what had beeen accomplished and was in progress at the close of 1907, as shown in the annual sanitary report by the officer in command, is creditable. A discussion of the progress made in construction up to June 30, 1908, and an outline of the new construction contemplated appears in another section, "New construction," etc., of this report. Suffice it here to say that, by the early thorough repair of a few of the buildings for officers' quarters, the administration building and the old army hospital building (to which latter was added an addition consisting of kitchen, pantry, dining rooms, bathroom, and lavatory), satisfactory provision was made for the care of a limited number of sick, and the first patient was received on May 4, 1907. In order to hasten the admission of the large number of tubercular sick who were distributed among the various other naval hospitals and Fort Bayard, a tent colony was established during the summer and early autumn on a site convenient to the subsistence department of the hospital building. It consisted of 29 units, with a total capacity of 58 patients. The erection of these tents was given very careful consideration, with the result that they have proved to be very comfortable living quarters both in summer and winter. The frame structures over which the canvas was stretched have so far withstood all heavy winds of the region. Mosquito wired doors and windows and wire screens on the inside framing, 5 feet from the floor, have protected the patients from mosquitoes and flies during the summer months, during which season the side curtains can be rolled up to the top of the wire screening. During the cold months the tents were heated by small cast-iron stoves which, with the close-fitting groove and tongue floors, made it possible to keep this character of housing very comfortable.

During the early period of development, up to December 31, 1907, a temporary water system, consisting of a 4-inch artesian well, a 3,000-gallon wooden tank and the necessary distributing pipes, was successfully operated by a deep well force pump attached to a 4-horsepower gasoline engine, and the quantity of water which it supplied was sufficient for the operation of the hospital in its restricted capacity. The main sewer system for the hospital was also in use, but owing to the limited water supply there was some trouble in keeping it free. As soon as the new pump has been installed at the 8-inch well there will be no difficulty in getting good flushing powers. The kitchen garbage was collected in large cans and carted away to a neighboring rancher. The sputum cups were destroyed in a temporary incinerator which was constructed on a site convenient to the hospital and tents.

The provision supply for the hospital was moderately good, considering the distance from large markets. During the warm weather the fresh meat supply was obtained from markets in Denver and Pueblo, but after the advent of cold weather a local butcher met the demands with very satisfactory articles. There was practically no local source of vegetable supply, and except for the celebrated melons of the region, which were abundant, all fresh garden truck was obtained from Denver or Pueblo. Fairly good bread was furnished by a bakery in Las Animas, but difficulty was experienced in obtaining good milk and fresh eggs. There are no established dairies or poultry farms in that immediate section of the Arkansas Valley, and in consequence the hospital was dependent upon a near-by rancher for its milk supply and upon shipments from Kansas for its eggs. The ranchman who was given the contract for supplying milk had no special knowledge of dairy business and his herd of cows is a mixture of many common breeds. It will not be possible to procure an ample supply of such milk as a tuberculosis sanitarium requires until a proper dairy has been established under the management of an experienced dairyman, and, in view of this fact, the proposed hospital dairy establishment, as well as the establishment of a poultry yard, on the reservation will be pushed as rapidly as possible.

The subsistence department at first experienced great difficulty in finding suitable cooks and mess attendants, but finally Chinese cooks were obtained from San Francisco, and fairly good white men as mess attendants were employed from Las Animas and adjoining towns. Toward the close of 1907 the commissary and subsistence departments under the immediate management of Hospital Steward Wierzbicki had been placed in a very satisfactory condition considering the source of supply.

The reservation was completely inclosed by barbed-wire fence; north and west sides by contract with new material, and south and east by hospital labor with old material. The driveway from the northwest corner of the reservation was cut and graded, but nothing was done on the other roads noted on the general plan, as construction had not progressed far enough. Neither was anything done toward breaking and grading the parade ground and yards around the quarters, wards, etc., nor toward beautifying the grounds, which must await the establishment of the irrigation system.

About 15 acres of land was plowed during the fall for planting in oats, alfalfa, and vegetables in the spring. Any further tilling of the soil must await the establishment of the irrigation system.

Scientific data were not obtained for making a satisfactory report upon climate in supplement to the meteorological table published last year, but it is generally conceded, and experience thus far has been, that that particular region is probably as well adapted climatically for the treatment of tuberculosis as any part of the United States. There is probably no climate in the world without some objectionable features, and New Fort Lyon has, as far as observed during the past eight months, one fault, viz, occasional dust storms, that for the time being make life uncomfortable. This source of discomfort will probably become less marked when the arid lands of the section have been more fully placed under cultivation. While the reservation itself is at present in a state of virgin prairie, plans are well underway for its transformation into a fertile spot by means of irrigation.

The location of the sanitarium in a country remote from the evil influences of large cities is believed to be a matter for congratulation. On account of the isolated position, however, it is highly necessary to beautify the grounds, furnish the means for an abundance of outdoor and other amusements, and give every physical comfort to the patients—in fact, to make the sanitarium an attractive home, outside of which patients will not be inclined to seek relief from nostalgia and other forms of mental depression.

Ninety-four patients were admitted to this hospital during 1907, and the accompanying statistical table by Surg. B. L. Wright, U. S. Navy, in the department of physical diagnosis, shows, (*a*) that over 90 per cent of the cases were admitted in the third stage of the disease, and (*b*) that, considering the condition on admission, the results of treatment were quite satisfactory.

Department of physical diagnosis—Report of cases, showing stage of the disease in which patients were admitted.

Classification.	Cases.	
	Stage of disease.	Extent of involvement.
First stage, incipient tuberculosis	0	
Second stage, infiltration	4	
Third stage, consolidation	85	
Fourth stage, cavity formation	5	
One lung involved		18
Both lungs involved		76
Total number of cases	94	94

Of the above, there was one case of cured pulmonary tuberculosis associated with acting tubercular adenitis, and one case of probably cured pulmonary tuberculosis associated with symptoms of tuberculosis of the genito-urinary tract, pointing to the prostate, the laboratory report asserting the presence of tubercle bacilli in the urine.

Department of physical diagnosis—Report of cases showing conditions complicating the tubercular process in the lungs.

Complication.	Cases.	
	On admission.	After admission.
Enlarged liver and spleen	2	0
Enlarged liver	4	0
Enlarged spleen	3	0
Contracted liver	1	0
Tubercular enteritius	0	2
Tuberculosis of spine:		
Second, third, and fourth lumbar vertebræ	1	0
Eleventh dorsal vertebra	1	0
Third lumbar vertebra	1	0
Tubercular pharyngo-laryngitis	3	14
Tubercular otitis media	1	0
Tuberculosis of genito-urinary tract	1	0
Tuberculosis of genito-urinary tract, probably	1	0
Tubercular epidydimitis	0	1
Tubercular pharyngitis	1	0
Arterio sclerosis	5	0
Aortic stenosis	1	0
Pulmonary stenosis	2	2
Mitral rgurgitation	1	0
Secondary syphilis	3	0
Gonorrhœa and venereal ulcer	0	1
Glandular involvement	7	1
Hypetrophic pharyngitis	1	0
Exopthalmic goiter	1	0
Ischio-rectal fistula	3	1
Hernia, left inguinal	1	0
Tyhoid fever	0	1
Glaucoma	0	1
Total	45	24

Department of physical diagnosis—Statement showing condition of patients at end of year.

Condition.	Number.
Stationary	20
Slightly improved	14
Marked improvement	24
Disease arrested	11
Clinically cured[a]	3
Failing	20
Died	2
Total number of cases	94

[a] None discharged to duty.

Reports of work in the departments of the eye, ear, throat, and nose, and of pathology and bacteriology are not submitted as the medical staff was inadequate to keep all this work up to the standard outlined by the bureau. In the department of surgery no important work was called for.

Canacao, P. I.—There were 799 patients under treatment at this hospital during 1907, a decrease from 1906, and of this number 365 were surgical cases. The operations included 106 of major and 190 of minor character· All were performed with good results, except in two cases which died. The medical service included 434 cases of various diseases, principally malaria, dengue, and dysentery, and diseases of the genito-urinary apparatus. The professional work done at this hospital during the year was satisfactory. There were 12 deaths.

Yokohama, Japan.—There were 88 patients under treatment at this hospital during 1907, a considerable decrease from 1906, and of this number 22 were surgical cases. The operations included 9 of major and 4 of minor character. All were performed with good results. The medical service included 66 cases of various diseases, and the greatest numbers of admissions were for diseases of the digestive and genito-urinary apparatus, the nervous system, and of the general infectious class. The professional work done at this hospital during the year was satisfactory. There was no death.

OPERATIONS.

A report of operations was not included in the bureau's report for 1907, owing to the lack of uniformity in the reports received and the inability of the bureau to satisfactorily compile the data which had been embraced in reports for the fiscal instead of the calendar year. It is the desire of the bureau that statistics under this heading be compiled and reported for the calendar year, in harmony with all other matter relating to the health of the navy and the professional work of the bureau.

Surgical operations for the year ending December 31, 1907.

	Cases.	Cured.	Improved.	Unimproved.	Died.
HEAD.					
Cranium:					
Depressed fragments, right parietal, elevated	1	1			
Fracture infraorbital arch	1		1		
Frontal sinus, opened and drained	1		1		
Fibroma, excised	1	1			
Mastoid, curetted and drained	6	5			[a]1
Trephine	4	1	2		1
Eye:					
Ectropion, plastic	1		1		
Enucleation	2	2			
Paracentesis, cornea, for gonorrhœal ophthalmia	1	1			
Pterygium, excised	16	16			
Symblepharon, operation for	1	1			
Face:					
Abscess, peritonsillar, opened and drained	4	4			
Adenoid, tonsil, removed	1	1			
Deflected septum, Asche's operation	4	4			
Incised wound, sutured	1	1			
Lacerated wound, extensive, sutured	3	3			
Nasal polypi, removed	2	2			
Paracentesis, ear	2	2			
Tonsillotomy	59	59			
Sequestrotomy, fragments removed	2	2			
Neck:					
Abscess, anterior cervical glands, opened and drained	9	9			
Abscess, submaxillary, opened and drained	1	1			
Angina, Ludwig's operation for	2	2			
Calculi in submaxillary glands, glands removed	2	2			
Goiter, removed	2	2			
Lipoma, excised	2	2			
Thyroid cyst, removed	1	1			
Tracheotomy	1	1			
TRUNK.					
Chest:					
Abscess, pectoral region	2	2			
Adeno-fibroma, both breasts, removed	1	1			
Amputation, right breast (tumor undetermined)	1	1			
Empyema, Estlander's operation for	24	23			1
Lipoma of breast removed	1	1			
Thoracentesis	19	12	6	1	
Thoracotomy	1	1			
Abdomen:					
Abscess, typhlitic, opened and drained	1	1			
Appendicectomy	116	116			
Appendicostomy	1	1			
Cholecystostomy	5	3			2
Cystotomy, supra-pubic	1	1			
Enterrorraphy, for penetrating wound	2	1			1
Gastro-enterostomy	2	2			
Gastro-duodenostomy	1				1
Glands, inguinal, excised	181	181			
Hernia—					
Inguinal	136	134		1	[b]1
Umbilical	3	3			
Ventral	2	2			
Kidney, ruptured, blood and urine evacuated	1	1			
Kidney, decapsulation	1	1			
Laparotomy—					
Exploratory	11	6	1		4
For ruptured bladder	1				1
Liver—					
Abscess of	2	1			1
Sarcoma	1		1		
Nephrotomy (pyronephrosis)	2	2			
Splenectomy	1				1
Spleen, ruptured, operation for	1				1
Sinus, abdominal curetted and sutured	1	1			
Volvulus, peritoneum drained	1				1
Back:					
Abscess, buttock, incised and drained	2	2			
Coccygodynia, operation for	1	1			
Lipoma, excised	1	1			
Pilonidal cyst, over sacrum, opened and drained	1	1			
Spinal puncture	8	8			

[a] Death result of meningitis.

[b] Strangulated hernia.

Surgical operations for the year ending December 31, 1907—Continued.

	Cases.	Cured.	Improved.	Unimproved.	Died.
TRUNK—continued.					
Rectum:					
Abscess, ischio-rectal, incised and drained	9	9			
Anal fistula	33	33			
Hæmorrhoids	78	78			
Perineal abscess	3	3			
Genital organs:					
Abscess, testicle, opened and drained	3	2		1	
Castration (one testicle)	8	8			
Circumcision	109	109			
Deformity of cremaster corrected	1	1			
Epididymitis, incision for, and drainage	1	1			
Hæmatocele, incised, drained, and packed	1	1			
Hydrocele, Van Bergmann's operation	26	26			
Hypospadias (Ochsner)	1	1			
Meatotomy	1	1			
Orchitis, incision for, and drainage	1	1			
Prostate, abscess of, opened and drained	2	2			
Scrotum, abscess of, opened and drained	1	1			
Scrotum, amputation of	2	2			
Urethrotomy:					
Internal	8	7		1	
External	5	5			
Varicocele	130	130			
EXTREMITIES.					
Amputations:					
Finger	25	25			
Foot	3	3			
Hip joint, septic myelitis	1	1			
Leg	1				[a]1
Thigh, upper third	1	1			
Toe	12	12			
Fractures:					
Atlas and axis, unsuccessful endeavor to relieve pressure of fragments on cord	1				1
Femur—					
Wired	1	1			
Upper extremity resected	1		1		
Compound fracture, drained	1		1		
Ununited fracture, wired	1		1		
Fibula, fracture pegged	1		1		
Foot, compound fracture, removal of fragments	1		1		
Humerus, involving elbow joint, fragments approximated	2	1	1		
Inferior maxillary, wired	2	1			[b]1
Metacarpal, refractured and reset	2	1	1		
Olecranon process, sutured	1		1		
Patella—					
Small fragment removed	1	1			
Fragments sutured	2	1	1		
Radius, wired	1		1		
Tibia, wired	1	1			
Tibia and fibula, compound, drained	2	1	1		
Ulna, fracture with incised wound approximated and sutured	1	1			
Joint operations:					
Bursa, olecranon, excised	2	2			
Elbow, aspirated and injected	1		1		
Hallux valgus, operation for	1				[c]1
Incision of joint, middle finger	1	1			
Knee—					
Floating body removed	5	5			
Abscess, opened and drained	1	1			
Joint, incised and drained	2	1	1		
Joint, aspirated	8	7		1	
Joint, lacerated wound, drained	1	1			
Ankylosis, operation for	1			1	
Fibroma, excised	1	1			
Osteophyte, elbow, excised	1	1			
Semilunar cartilage—					
Sutured	1	1			
Excised	2	2			
Sterno-clavicular dislocation, ligament shortened	1		1		

[a] Died as a result of surgical shock, compound fracture of both bones of right leg, and simple fracture of thigh sustained by being caught in a landslide in Samoa.

[b] Died as a result of fracture of sixth and seventh cervical vertebræ sustained in connection with fracture of jaw and revealed at autopsy.

[c] Died under ether anæsthesia.

Surgical operations for the year ending December 31, 1907—Continued.

	Cases.	Cured.	Improved.	Unimproved.	Died.
EXTREMITIES—continued.					
Bone operations:					
Astragalus, resection of	1		1		
Clavicle, excision of	1	1			
Encapsulated fragment femur, removed	1		1		
Exostosis—					
Metacarpal, excised	1	1			
Metatarsal, excised	1	1			
Metacarpal, resection of	1	1			
Necrosis, curettement	2	1	1		
Osteoma, excised	2	2			
Osteomyelitis, operation for	1	1			
Ostitis, left tibia, drained	1	1			
Periostitis, femur curetted	1	1			
MISCELLANEOUS.					
Abscess:					
Plantar, incised and curetted	1	1			
Femoral gland	4	4			
Axillary, incised and drained	1	1			
Unclassified, opened and drained	68	68			
Aspiration and injection of suppurating glands	3	3			
Aneurism:					
Left temporal, ligation	1	1			
Popliteal, ligation	1	1			
Bursa, removal of	1	1			
Cellulitis, unclassified, incised and drained	10	10			
Cyst:					
Dermoid, removed	2	2			
Unclassified, excised	11	11			
Dupuytren's contraction of fascia, excision	1		1		
Excision of adherent scar	1		1		
Foreign body removed	5	4		1	
Ganglion, wrist, dissected out	1	1			
Incision, exploratory	1	1			
Ingrowing nail, operation for	18	18			
Intravenous transfusion	6		6		
Lacerated wound, forearm, vessels ligated	2	2			
Ligation, brachial artery	1	1			
Lipoma:					
Thigh, removed	1	1			
Unclassified, excised	5	5			
Lipomatosis, multiple tumors removed	1	1			
Lymphadenoma removed	11	11			
Myositis, purulent, hip, opened and drained	1	1			
Neurorraphy, ulnar	1		1		
Phlebitis, excision of veins	1	1			
Pyemic abscess, multiple, incised and drained	2	1			1
Sarcoma, thigh, excised	2	1	1		
Section of sciatic nerve for tetanus	1		1		
Septic hand, drained	1	1			
Skin grafting	5	2	3		
Tenorrhaphy	5	3	2		
Ulcers, curetted	2	2			
Varicose veins, leg	22	22			
Venereal warts, excised and cauterized	11	11			

Data concerning appendicitis in the United States Navy.

Year.	Cases.	Operated.	Died.	Surgical operations for all cases.
1901	51	25	2	345
1902	72	42	3	662
1903	88	88	2	753
1904	99	67	3	1,022
1905	141	110	2	1,533
1906	157	98	0	1,502
1907	177	116	0	1.855
Total	785	491	12	7,172

NOTE.—Sixty-two (plus) per cent of appendix cases were operated upon. One and five-tenths (plus) per cent of all cases, irrespective of treatment, died. The "Died" include operated and nonoperated cases.

CRUISING SHIPS.

The health of the force afloat has, on the whole, been remarkably good during the year covered by this report, and the records show a substantial improvement over 1906, even as regards the actual number of cases admitted, notwithstanding a much greater average strength and the active existence of those conditions, some of them exaggerated, which were pointed out in last year's report as contributing largely to the sick list. The ratio of sick per 1,000 of force for 1907, estimated upon statistical data received from all sources, is 740.12, while in 1906 it was 787.23, a reduction which is gratifying, not only as a result, on account of the indication it gives that hygienic principles and sanitary dictates are being more carefully observed and that the navy is sharing the benefits of progress in medical science. No other conclusion is tenable, and every branch of the service has played an important part in attaining the result and is entitled to share the credit of it. All are, more and more, working together toward a common end. It is hoped that this improvement may be progressive and uninterrupted, as it may be, by mutual recognition and support in the important work devolving upon each branch of the naval organization.

Infectious and contagious diseases.—This subject has been given special consideration in a separate section. It will be sufficient here to enumerate those ships upon which isolated cases or epidemics of the diseases under this class developed during the year. The *Alabama* reported 1 typhoid fever; the *California* 5 mumps; the *Chattanooga* 1 smallpox and 1 typhoid fever; the *Chicago* 2 mumps and 1 typhoid fever; the *Cleveland* 5 measles and 17 mumps; the *Culgoa* 1 typhoid fever; the *Des Moines* 1 typhoid fever; the *Georgia* 22 measles and 2 mumps; the *Illinois* 4 mumps and 1 erysipelas; the *Kentucky* 22 measles, 1 chicken pox, and 1 cerebro-spinal meningitis; the *Louisiana* 1 diphtheria, 11 measles, 6 typhoid fever, 2 mumps, and 2 erysipelas; the *Maine* 6 typhoid fever, 3 measles, and 1 chicken pox; the *Maryland* 2 cerebro-spinal meningitis and 3 scarlet fever; the *Milwaukee* 8 measles and 5 mumps; the *Minnesota* 47 mumps, 14 measles, and 7 chicken pox; the *Missouri* 9 mumps, 1 typhoid fever, and 3 measles; the *Nebraska* 12 mumps; the *Prairie* 3 mumps; the *Rhode Island* 44 measles; the *Tennessee* 31 mumps, 10 measles, and 2 typhoid fever; the *Virginia* 1 diphtheria, 31 measles, 5 mumps, and 5 typhoid fever; the *Washington* 5 typhoid fever, 10 mumps, 3 measles, and 1 chicken pox; the *Wolverine* 1 diphtheria; and the *Yorktown* 5 measles.

Of these, the occurrence of typhoid fever on the *Maine* is alone of particular interest, largely because of the developments subsequent to the appearance of the 6 cases above reported at the end of the calendar year 1907. Surg. M. S. Elliott, senior medical officer of the ship, submitted a special report on this epidemic May 27, 1908.

The provisions for the care of the sick and injured.—In the report for 1907 the bureau advised caution in the reduction of the sick quarters on ships already in commission and those building, and the reasons there given were such as to have tempered decision in the matter of proposed changes and dissauded from any hasty radical action. With the undue criticism of the space allowed the Medical Department, which was active in the winter of 1906–7, and which culminated in the early spring of the latter year, there was danger of jumping from one extreme to the other—from what was then regarded as an overabundance of emergency hospital space to a greatly inadequate allowance, and that danger seems to have been realized more or less on the different ships that have been altered in this respect. But the question of mere capacity for the purpose of billeting a certain small per cent of a ship's company, which it has been somewhat arbitrarily estimated will represent the probable number of sick, is only one of the factors involved in determining sufficiency and efficiency, for the simple reduction of space imposes other conditions, such as defective ventilation and light, which seriously impair the medical facilities and embarrass those charged with the care of the sick and injured. Complaints have been received from medical officers of many ships, and all are of the same general purport.

SOME SANITARY FEATURES OF SHIPS.—There seems to be progressive improvement in this direction as the plans of new ships are laid down and their fittings provided. Opportunities for improvement, however, are far from being exhausted, and some of the old and repeatedly indicated defects are still in need of correction, at least on some of the ships. This statement has reference to ventilation and lavatory accommodations, which have in many instances been found seriously wanting, not from a standard of perfection, but from a standpoint of demonstrated necessity and reasonable efficiency. These questions were briefly discussed last year, and sanitary reports from a number of ships indicate that they are still in need of remedial attention.

There are many subjects under the above general heading which should be brought to the department's attention, but the limits of this report only admit the consideration of a few, and among these that of *illumination* is believed to be of prime importance. The established standard of visual perfection and acuity for naval service has always been high, and the incalculable dependence of every human pursuit upon sound eyes makes their proper care an economic necessity, yet probably no other organ of the body is so universally abused and neglected or subjected to such destructive influences as the eye. The importance of its full normal capability is increasing, and in no sphere of activity has this observation more truthful or forceful application than the naval service, and modern gunnery in particular is paramount in demanding good eyes. The present projecting range of guns, the aids to precision and the required rapidity in gun fire, and the distance at which ships would engage in battle—these are but a few of the items which indicate the need and explain the demand for men of superior sight as pointers.

To say the very least, it is of extreme practical interest to the service that the very best provisions be made to preserve the normal vision of its personnel, not only at its institutions for the education and training of young men, but on board ship. It is for these reasons and the increased dependence upon artificial light on board modern ships that the question of illumination deserves more careful consideration. There should be an exact and scientific determination of the needs in this matter, based upon actual test in respect to the character, power and position of light, and the reflector. The low watt lamp seems to be the best, but adherence to the old carbon filament is probably on account of the fact that it is less brittle and therefore of longer life.

In spite of this fact it is believed that economy would be much better served by adopting some low watt lamp, notwithstanding the possible slight additional expense of breakage from jars, than to subject the eyes of officers and men to the impairing influence of eye strain. There must be a standardization in the question of lighting, not a mere reliance upon haphazard methods in providing, locating, and shading lights, and until this is done the department will not be secure against the many complaints that are continually sent in and in a position to characterize criticism as unreasonable. Presumably there are both unreasonable and well-founded complaints, but the department is not now prepared to distinguish between them, and there is undeniable evidence that eyes are exposed to avoidable wear and tear in the service.

In discussing this subject in his report on the *Illinois*, Surg. F. M. Shipp wrote:

> During the two years and three months I have served on this vessel several of the electricians, detailed for duty in the dynamo rooms, have complained of trouble with their eyes, and two or three of them have been discharged on approved recommendation of a board of medical survey. It is believed that the eyes of the men who work in the dynamo rooms habitually are subjected to a severe and constant strain caused by the glare from the white paint-work, and from the bright electric lights. Upon inquiry I have been told that it is the custom on shore in large dynamo rooms to have the lights covered with green shades, and it is recommended for consideration that dynamo rooms on board ships of the navy be painted a pale green tint, and that all electric lights be shaded with green shades.

This suggestion is of value for other parts of a ship also, particularly those compartments where necessary desk work is done, and which are lighted solely by electricity, and in the various offices where clerical work is constantly being carried on. Not only should the desk illumination be equal to about 3 foot candles, which can be secured by proper elevation of the lamp, but the filament should not be left in a position visible to the eyes, as ordinarily elevated from the work, except by conscious effort to see it. These requirements would be met by placing the lamp about 1½ feet back and 1½ feet to the left of the occupant's position, and at an elevation to give the required foot candles. Moreover, there should be a general diffuse illumination of the compartment of only somewhat less intensity than the working light, and the bulkheads should be painted some light tint (green or buff) so that the eyes will not be subjected to the shock of a sudden dilation or contraction of the pupil when they are lifted from the work to gaze into space and are brought back to the work.

The *heating of ships* in cold climates entirely by the old system of radiators placed in the living spaces has long been recognized as ineffective and unhygienic, and has been productive of general impairment of health and much actual sickness. Not only does it present well-nigh insuperable difficulties in properly regulating the temperature of compartments, but it usually means the heating and reheating of vitiated air, for, with all the doors and ports closed and the supply ventilating system surreptitiously shut off, practically no fresh air can gain entrance; or if the supply of fresh air through the system of tubes is uninterrupted, the occupants are exposed to dangerous chilling drafts to which they are then peculiarly susceptible by virtue of the relaxing influence of the surrounding superheated air.

The new method of heating, and which was installed for use in a few compartments on the *Vermont*, is not only rational in principle, but is reported to have proved excellent in practice. Consisting as it does of a heating chamber or thermo-tank, containing steam coils and so connected with the ventilating system that all air sucked in for distribution passes over these coils and becomes heated, it is possible to provide an unlimited supply of warm, and at the same time, fresh air. If it proves as much of a success in heating an entire ship as in heating the few compartments experimented upon, the method will represent a great stride toward the maintenance of health on board ship, and will make cruising in northern latitudes during the winter season more comfortable and less hygienically deletrious. Besides insuring a supply of fresh air, without the danger of chilling drafts, and providing an easily regulated source of heat, the air circulated by this method is kept at a uniform temperature, no matter what the degree required may be, and it also seems to retain a healthful amount of its natural moisture. The bureau, for obvious reasons, regards investigations along this line with the utmost favor and, while watching results with great interest, will hope for an unqualified success of the new system as a means of solving a hitherto difficult problem in naval hygiene.

But this subject is so intimately associated with the question of *ventilation* that it imposes an additional responsibility to design and place the supply and exhaust air channels with the utmost care. The idea embodied in the exhaust system of ventilation (to draw out the foul air and to trust the fresh air to find its way in unaided) makes it more or less applicable on the upper deck, though even here there are certain pronounced exceptions to this general statement of its utility, but in the lower portions of ships the chance inlets, such as natural openings or port holes, are either greatly insufficient or entirely lacking. Consequently it is necessary to pump air in as well as draw it out, for which purpose a double set of trunks is needed, and in placing the inlet of one and the outlet of the other they should be separated as far as possible from each other so that the current of air may accomplish the utmost toward improving and renewing the atmosphere in the whole compartment. Moreover, in living spaces the outlets should be so placed and trimmed or protected by baffles that the stream of air will be broken up and so distributed as to prevent drafts. Unless this precaution is observed ventilation will certainly be interferred with, as those who suffer will find some way of closing the ventilators. It is not sufficient to install the system on a theoretical basis and rest content upon a mathematical estimation of its capacity per units of time to renew the air in a given inclosure. Practical experience, under varied seagoing conditions, and constant observation of its working efficiency and of the extent to which members of the crew allow it to operate, are needed before any reliable conclusion can be reached as to the manner in which any ventilating system performs its functions. The opinions of those who have opportunity for such experience and observation should be given due weight and serve as guides in laying down future plans.

The use of *linoleum and shellac* as a deck furnishing or dressing has created a need for sanitary vigilance. Both, by neglect, may be indirectly responsible for uncleanliness and disease producing conditions.

The former, by becoming worn and cracked, permits an unseen accumulation of filth and moisture admirably suited to the proliferation of disease germs. When in that state it had far better be torn up, as a measure to protect health, if for no other reason.

The latter, when there is not a sufficient allowance to keep the decks covered at all times, has a bearing upon the development of unwholesome conditions. In other words, shellac has a definite value as an aid toward the cleanliness and, therefore, healthfulness of ships, and a deck well covered with this dressing may be said to be sanitarily finished, and it is particularly necessary in the messing spaces. Surg. W. B. Grove has pointed out that when the shellac wears off the greasy food that falls from the tables is ground into the exposed linoleum or wood deck, and can only be removed by frequent applications of soap, water, and lye, which, granting the procedure is completely successful, results in a damp and unhealthy living space. He believes that a liberal use of shellac would induce a spirit of cleanliness, for when the deck is stained and worn-looking a reverse influence is exerted. It is unwise to ignore the part which human nature plays in even such an apparently trifing matter as this, and the mental attitude of the compartment cleaners seems to be that it is more or less a waste of time to labor over a thing that refuses to look clean no matter how much effort is expended. Well-shellaced decks, therefore, in addition to being sanitary in themselves, foster a spirit of cleanliness not only among those responsible for their appearance and condition, but among the crew as a whole, and a liberal allowance of the material for ships is recommended.

The following extracts will serve to illustrate that there are defects of hygienic import in the *lavatory accommodations* of some ships, and they will also instance the nonconformity which is often observed between the theoretical working of certain provisions in ship construction and their practical working in the presence of the actual conditions which they were planned to meet.

Surg. A. W. Dunbar, in his report on the *California*, says:

> The excessive heat of the flushing water, caused by its first circulating through the distillers, renders the shower baths, in which only salt water is used, almost useless, and constitutes a nuisance in the water-closets on account of the odor-laden steam arising from them. To remedy this it will be necessary to have a separate pump * * *. As it is now, the crew, especially the engineer's force, coming off a hot watch below, are deprived of the invigorating cool shower which lessens the liability to contract colds.

Surg. E. P. Stone, in his report on the *Rhode Island*, says:

> A very serious sanitary defect is represented in the bathing facilities, for both officers and men, which have completely failed on board this ship. * * *
>
> When the ship was placed in commission one of the features which excited favorable comment was the admirable tiled decks, etc., in the crew's bathroom and the engineer's washroom, and the advance in the facilities for comfort and cleanliness that was being made was remarked upon. Great was the disappointment when it was found by actual use that this fine equipment was rendered entirely useless owing to the character of water supplied the showers. It was salt water from the flushing system, and reached the showers so hot that the men could not endure it. Gradually all these fine showers are being torn out of the ship, and the men have been forced to resort to the primitive method, which obtained in the old navy, of washing from buckets.

The requirements of modern hygiene unquestionably comprise ample bathing facilities for the use of everybody, and to none are they more necessary than to those engaged in manual labor, particularly that of a nature which excites profuse perspiration and begrimes the body with dirt and oil, as does the work of the engineer's force on a battle ship. The close personal contact incident to ship life is a sufficient reason for such provisions, and the need is emphasized when in the Tropics, where much cruising is now done; but there are other arguments for convenient and generous bathing facilities, such as tidiness of the decks and economy in time and labor, which will appeal to executive officers. The defects exemplified by the above extracts should be corrected.

SOME HYGIENIC FEATURES OF SHIP LIFE.—In the report for 1907, under this head, the general physical condition of the naval personnel and the existing needs and means for its betterment were considered at length. Too much can not be said on this subject, for in it is embraced the very backbone of naval efficiency, and attention to those matters, in the daily life of officers and men, which will build up their vital resistance to disease and their strength for endurance under physical strain, is the most practical sort of insurance against disaster in the crucial test. Wholesome recreation and exercise in the open air are essential factors in the preservation of health and in the development of the best mental and physical powers. They relax and relieve the high tension under which we work in this strenuous age, and they reinvigorate in spite of the energy which may be expended. This subject is being widely discussed and the important truths that it embodies are pressing with greater insistence and being more generally recognized each year. The conditions of ship life place the navy in particular need of the benefits which exercise in the open air and sun offer. The navy has made a grave mistake in its manner of participating in this health movement, for, by the practice of selecting the few who have given promise of shining in athletics and adding strength to competitive teams and training these, the great majority who are in most need of physical development have been neglected. It is time to change the practice in this direction and it is hoped that in the future such errors may be avoided.

Physical examination of crew.—In connection with the above in particular and the hygienic supervision of naval personnel in general, there should be no relaxation in the regular and special periodic inspection of the physical condition of the ship's crew; but, on the contrary, increasing precision and thoroughness should characterize this important duty of the medical officers. The benefits of such practice are immediately felt; the final results are sure to be of extreme value. This subject was discussed in the report for 1907.

Surg. A. W. Dunbar, in his report on the U. S. S. *California*, writes:

> It has been proposed, and has met with the approval of the commanding officer, that a thorough physical examination of the crew be made twice a year. This was done during my previous cruise on the U. S. S. *Wyoming*, and was beneficial and instructive, in so far as it brought to light cases of concealed gonorrhea and syphilis, parasitic skin diseases, and tuberculosis. The men were examined as to the evidence of vaccination; their weight, age, and height taken, and general appearance noted, and, if indicative of poor health, their names were taken and a careful physical examination made later. In this way cases of disease which do not come under the observation of a medical officer for various reasons, such as restriction in the case of venereal diseases, and the dread of having a fear become a certainty in tuberculosis, are brought under observation. Having the height, weight, and age, it is possible to determine the

averages which give an idea of the sufficiency of the ration and the general physical condition of the crew, and, moreover, by comparing the results of successive examinations, the effects of diet, habits, and environments, etc., of the crew may be intelligently watched and conclusions formed as to whether or not one or another or all of the conditions of ship life are as they should be.

Oral hygiene.—The navy's need of provision for skilled exponents of the principles involved in this special divison of the science of prophylactics has long been recognized, and is expressed in the bureau's persistently repeated appeal for "Dentists for the navy." It was never intended, however, that effort in the direction of oral hygiene should rest here, and certain expedients have been and will continue to be employed to ameliorate the existing conditions and bridge over the time until the proposed legislation shall have been enacted. But there are certain features of this field of preventive medicine in which we all not only may, but must, take active part, and the growing importance of hygiene of the mouth makes this duty more imperative. The subject is discussed in this place, for it is on board ship, where the men are all under close surveillance and in a more receptive state of mind, that enlightenment may be spread, principles inculcated, and reasonable rules of health enforced. It is here, in connection with the medical officer's school for instruction in first aid and lectures on other hygienic topics that the subject in question should be taken up. In this problem the service is unfortunately dealing with the legacy of neglectful or unenlightened parents—both in the form of deteriorated teeth and untutored habits, and the task of accomplishing the necessary reform is therefore the harder and must be undertaken with energy. The solution of the problem and the realization of a better state of affairs in this direction hinges on a change of ideas which can only be effected by a thorough schooling.

In the navy body cleanliness exists as a characteristic of the service personnel, and this is maintained, not by virtue of regulations or the facilities provided, but by force of public opinion through the instrumentality of disciplinary measures. On board ship the recruit who shows a disposition to eschew the bath is always an object of the crew's active attention, and, if necessary, a scrubbing is administered to initiate the change of habit. The old man-o'-warsman will not tolerate the more apparent filth of the body's surface, and yet, at the same time he is all unwittingly countenancing the vastly more offensive and menacing uncleanliness of neglected mouths. Indeed, the time has not long passed when the display of a toothbrush was occasion for derision. To-day the employment of this sanitary implement is much more general among the enlisted force, but its great importance is not understood, and its utility and hygienic benefits need a convincing introduction. An accounting of the numerous morbid conditions, in the development of which the mouth plays a large part, gives evidence that when toilet of the mouth has become the rule rather than the exception a great advance will have been made in the interest of individual and general health. Up to the present time hygiene of the teeth has met with too little attention, in spite of the fact that dental lesions have been responsible for a great deal of sickness and even death in the service. The curriculum of the Naval Medical School includes a course of instruction in stomatology and dental emergencies, and when enlistment examinations are made the examining surgeon should especially observe the state of the mouth and teeth of each recruit. Moreover, in the periodic inspections of ships' crews these observations should be kept up, and, when necessary, particular cases should be made the subject of a special report to the commanding officer with a view to necessary treatment or enforcing the observance of rules of oral cleanliness. Some such system is pressingly necessary in the navy and the matter is deserving the department's attention and official authorization.

The service can not afford to permit the slightest suggestion of reasonable practical import to go unheeded if it would meet the peculiar responsibilities in prophylaxis, and in this connection it has been pointed out that much of the stomatitis and gingivitis occurring in the navy is in part attributable to the constant use of match sticks as toothpicks. The igniting ingredients used are said to include phosphorus, sulphur, sulphide of antimony, red lead, sulphide of mercury, and lead chromate. These are on the head of the stick of the lucifer match and are variously divided between the box and the stick in the case of safety matches. All are decidedly poisonous and the fumes from this combination are bound to penetrate the absorbent wood. This fact, hygienically speaking, can not be disregarded, and the reddened, spongy gums and inflamed continuous mucous membranes frequently seen often indicate a mild metallic poisoning, either from the phosphorus, mercury, or lead, etc., which has been dissolved in the saliva. The men should be warned against the above practice, and, while the removal of particles of food from between the teeth is an acknowledged sanitary necessity, regular tooth picks should be used for the purpose, and these should be carried in the canteens of ships.

The ship's barber.—There are very important modern hygienic and sanitary requirements which pertain to barbers and which, according to their nature, should be rigidly complied with or enforced in all ships of the navy. It may not be fully realized, but it is a stern fact, that barbers may be and often are very potent agents in the transmission of many diseases, either from their own persons or from patron to patron, by means of their hands, their clothing, their instruments, their excretions, and the expiration spray ejected in talking. Decency imposes certain moral obligations upon a barber and science imposes definite sanitary regulations in the interest of preventive medicine.

In this connection Surg. N. J. Blackwood wrote:

> I am constantly struck with the fact, as I pass the ship's company at Sunday inspection, and as I see them at different times about the ship and in the sick bay, of the general prevalence of facial skin diseases. They range from a few pimples to the most aggravated cases of indurated to tubercular acne and eczema of the most pronounced types. These conditions can not be properly ascribed to the occupation or personal hygiene of the subjects, but can largely be traced to infection in the barber's chair. That is where the remedy should be applied in order to check the spread of these disease conditions and to * * * eradicate them from the ship.

In continuing his comments upon the subject this officer maintained that in the absence of reasons to the contrary and from the standpoint of hygiene, economy (of both money and time), and cleanliness, every man should be required to shave himself and the barber limited to hair cutting. While such regulations may be desirable, they do not seem feasible, and it would in all probability be sufficient and practicable to establish and enforce effective sanitary rules and measures which would guide and control the operations of the ship's barbers. It is recommended that some such regulations as the following be made the subject of a general order:

1. No man suffering from skin affections, tuberculosis, syphilis, or kindred disease should be allowed to act in the capacity of ship's barber, and a careful physical examination should be made periodically by a medical officer to determine whether or not the man is in good physical condition.

2. The barber should be particularly careful, for obvious reasons, to keep his hands scrupulously clean and he should be required to wash his hands after serving each patron, using some antiseptic soap in this toilet.

3. The so-called "community cup" and common lathering brush constitute a danger to be avoided, and it is desirable from a sanitary point of view that each person should have his own shaving implements, including the razor, but if this is impossible or undesirable for reason offsetting the sanitary arguments, the barber should be required to observe certain rules in the care of his own implements.

(*a*) After each shave the lather left in the cup should be thoroughly washed out and the brush cleansed. No solid soap should be kept in the cup, but liquid soap or shaving paste (in tubes) should be used, so that the lather for each separate operation may be made with fresh material from a clean source.

(*b*) Instruments (razors, scissors, and clippers) should be wiped clean after every shave or hair-cutting operation and periodically sterilized by a thorough washing with alcohol, followed by a strong solution of either formaldehyde or carbolic acid. If considered necessary, immersion could be resorted to in the case of razors by forming an angle between the back of the blade and handle and hanging them over the edge of the container. Such an exposure will effectively accomplish the sterilization without the slightest injury to the metal or dulling of the edges—at least beyond what stropping can redeem. This procedure should be immediately carried out after serving a man who has an eruption or shows evidence of other skin disorders which were not discernible before the operation (no person with disease should be served by the ship's barber). The brushes and combs should be thoroughly cleansed at reasonable intervals under ordinary circumstances, but this should be done immediately after they have been used on a head which is in questionable condition as regards healthfulness or cleanliness.

(*c*) Clean tissue paper should be used to cover the head rest of the barber's chair, and this renewed for each patron, and, likewise, a clean towel should be used for each patron.

(*d*) The clipped hair should be gathered up and disposed of promptly to prevent its being blown about the deck. Especial attention should be given to this measure in suspicious cases.

It is believed that if some such practices as the above were enforced on ships of the navy there would be fewer opportunities for the transmission of contagious diseases. The measures suggested are neither costly nor laborious in nature, and they could be expeditiously carried out.

Tattooing in the navy.—This is a subject which has received consideration on sporadic occasions and by various indivduals of the medical branch and other branches of the service, but in almost every instance the view point of the writer has been moral or statistical—the former in the sense of indicating a low appreciation of the fitness of things, if nothing more; the latter in the sense of classifying the character of the design and its location on the body. A few have given attention to its hygienic aspect, but unfortunately too little has been said or written upon the dangers of the practice, and it is probable that any warning which may have been sounded has failed in its purpose, because it did not reach the ears and impress the understanding of those actually concerned. The department and its subordinate naval authorities may not realize the existence of a serious side to the practice which threatens the best interest of both seaman and service, but the hope is entertained that heed may be given to the now established fact that the process of tattooing constitutes an unusually potent vehicle for the transmission of the most dreaded cuticular and constitutional diseases in virulent form. It is a type of vaccination, conducted with utterly ignorant and condemnable lack of precaution, in which the virus imbedded may consist of any one or a combination of infections, and which is attended by imminent possibility, if not probability, of disastrous consequences to health. Syphilis and tuberculosis and various other local and general ailments are recorded results of tattooing, and deaths have been reported from blood poisoning acquired in this manner. It is an evil to be suppressed, and official action to this end should be prompt and vigorous. The German Government has recognized the insidious danger of the practice, and steps are being taken to suppress it. The British are awakening to the same danger and urging action by the Government in the matter as regards its army and navy. There is need for the naval authorities of the United States to take official cognizance of the danger in the practice, and it is recommended that the department direct the discontinuance of tattooing throughout the navy, at least so far as concerns the performance of the operation by persons in the navy, by an order which shall express absolute prohibition, as nothing short of that would be effective. Medical officers' educational work among the enlisted force on board ship and elsewhere should include a word of advice on this subject in the light of its dangers, and such enlightenment would simplify the enforcement of any regulation against it.

Wood alcohol.—From the records of the past year it would seem that the poisonous effects of this chemical are not as universally known as may be supposed. In spite of the continued publication and the wide circulation of warning notices the information evidently fails to reach all and wood alcohol still claims many victims, to which the navy contributes an unnecessary share. The three cases reported from the *St. Louis* instance the fact that in the navy it is most often an uncontrolled craving for intoxicants which leads to the employment of any device in the effort to satisfy an appetite and often brings the ignorant to destruction. The above cases drank a mixture of water and linoleum cement. It would be unreasonable to assume other than that the instinct of self-preservation would control even the most reckless in the gratification of an appetite if they were aware of the chance of drinking such a poison so rapidly destructive to sight or life as wood alcohol. Such knowledge would deter many from indiscretions, and it is this knowledge which must be conscientiously disseminated by every medical officer. At the same time every precaution should be observed by executive officers that mixtures containing this form of alcohol are not left accessible, though it is believed that care in this direction is now very generally exercised.

Medical Department in battle.—This subject and related considerations, such as "Instruction in first aid" and "Noncombatants assigned to the surgeon's division," were discussed by the bureau last year, and articles in elaboration of the questions involved have been published in the Naval Medical Bulletin from time to time. The bureau has continued to call for detailed reports upon the medical organization of ships going into commission, and, during the past year, such as had already been received in the bureau were subjected to a critical analysis by Medical Inspector H. G. Beyer, U. S. Navy, with a view to submitting, in accordance with directions, suggestions in each case or class of ships for improvement in the organization. This officer has already submitted a valuable systematic report upon his preliminary studies, and his final work on the organization of the Medical Department, as contemplated in the bureau's annual report for 1907, when completed, will form the basis of future special recommendation.

Visual acuity of gun pointers.—This subject was touched upon in discussing illumination under "Some sanitary features of ships." In February of the present year it was brought to the attention of this bureau that, in spite of a normal acuteness of vision and the aid of telescopic sights, the accuracy of aiming guns in long-range firing depended upon and was influenced by a number of other possible conditions relating to the perfection of eyesight of gun pointers and the circumstances under which they might be called upon to perform the duties of their office. Moreover, that the degree of unfavorable influence of ocular defects and weather conditions, etc., would be greater or less according to the general physical state of the particular gunner. The bureau therefore appointed a board of medical officers to consider the advisability of requiring an examination of eyesight in candidates about to be selected for the rating of gun pointer and to suggest a method of examination. The board reported as follows:

* * * * * * *

As such candidates are selected at large throughout the service on cruising ships and are never concentrated in any one place, it follows that a method of examination should be employed that is practicable for any medical officer on a ship to apply. It is believed that no gun pointer would long remain in his rating if his eyesight was markedly defective, as the training involved would in time eliminate him, i. e., he would not succeed in aiming drill, but by determining his visual acuity before appointment, it is believed that much time and labor would be saved and the visually defective rejected at the start. As both myopia and hypermetropia of moderate degree would be corrected by the telescopic sight, there would remain only astigmatism and conditions causing amblyopia to be eliminated.

Considering the low standard of visual acuity required for enlistment, it is more than probable that cases of marked astigmatism may occur among those members of the ship's crew who are candidates for the rating of gun pointer. In view of the fact, however, that in moderate and high-grade astigmatism vision is always defective, it is believed that by raising the requirements of right-eye acuity to a standard above normal, as recommended in the proposed circular, dangerous degrees of astigmatism will be eliminated, and by a means practicable to the examining surgeon under the present conditions of appointment of gun pointers.

The only objection to the proposed method of elimination is that a certain number of men might be rejected who were not astigmatic to a disqualifying degree, yet might not be able to meet the extreme requirements of right-eye acuity, and who might make good gun pointers. Considering, however, that the source of supply from which these men are selected is practically unlimited, and that it is imperative that only the best should be chosen, it is believed that this objection should have no weight and that the proposed plan is the safest one to adopt—the one most practicable for the medical officer afloat to apply, and one that meets the conditions under which gun pointers are selected throughout the service.

In this connection it is to be noted that student medical officers at the Naval Medical School are now being instructed in the methods required for the examination of the eye with the idea of enabling them to make such examination as service conditions require.

It goes without saying that this proposed standard would throw out all cases of amblyopia of whatever cause.

It is proposed, therefore, that the department be recommended to issue the accompanying circular memorandum to medical officers and a special order to commanding officers requiring that all candidates for the rating of gun pointers be referred to the medical officers for examination of eyesight preliminary to appointment.

It was recommended by Commander W. S. Sims, however, that before issuing the "Circular memorandum for the information and guidance of medical officers" above mentioned, steps be taken to secure accurate data as to the visual acuity of all men then holding the rate of gun pointer who had fired at one or more target practices, as a basis upon which to determine the requirements of eyesight in candidates for this rating. The reports submitted from 32 ships, representing a total of 1,675 gun pointers examined, in obedience to an order based on the above idea, showed 74 per cent to have complied with the test of 20/15 vision in the right or aiming eye. Vision was normal in the left eye of 1,579 men, or 94 per cent. In view of these results it seemed conclusive that the proposed test for the right eye of prospective gun pointers was not over severe, and it was therefore recommended that, to avoid the selection and the placing in training of men for this rating who had defective vision, the regulations governing these appointments be amended to require that in the future no candidate be accepted who did not conform to the tests for visual acuity mentioned in the bureau's original memorandum, which is as follows:

Applicants for the rating of gun pointer, who are referred by the commanding officer to the medical officer for examination of eyesight preliminary to appointment, shall be subject to the following requirements:

No applicant should be recommended as qualified for this rating who can not read with the right eye at 20 feet the line on Snellen's test card which is normally seen at 15 feet (i. e., 20/15 vision). A minimum of 20/20 vision should be required with the left eye. The test card should be well illuminated.

This degree of visual acuity in gun pointers is deemed necessary in order to eliminate ocular defects, especially moderate and high degrees of astigmatism, which would tend to prevent satisfactory performance of duty in this rating.

Protection of the ears.—In the report for 1907 this subject was briefly discussed and the need of some efficient protection for this organ during big-gun fire was clearly pointed out. At the same time the department was advised that the bureau was studying the merits of various devices with a view to determining which of them best met the peculiar requirements, and with a view also to recommending the official recognition of those that proved, upon thorough test, to be satisfactory.

Various devices have been suggested from time to time, most of which have been found wanting in one or more important particulars. It is to be observed that any device for this purpose must combine certain qualities and features which may be enumerated as follows: First, it must be simple, in that it will not require more than ordinary knowledge of the anatomy of the ear for its adjustment; second, it must be devoid of any possibility of injuring the eardrum, even by careless adjustment, and must not cause irritation of the skin or occasion annoyance; third, it must be capable of easy and quick adjustment; fourth, it must preserve a comparative sensitiveness to voice sounds; fifth, it must reduce the force of air concussion incident to heavy explosions below the point of danger to the auditory mechanism and nerves; and, sixth, while any device for the purpose under consideration must necessarily be small and easily misplaced or lost it should be provided with a retainer which will reduce this chance to the minimum. The cost of the device is also a considerable factor, particularly in view of the possibility of losing it.

It is believed that the Elliott ear protector, when the size properly fitting the individual is used, fulfills the items of this specification better than any other device for the same purpose that has so far been tested, with the possible single exception of its price; but, when purchased in large orders, as was done by the army, which bought 6.000 sets for use in the artillery branch of the service, this would probably be materially reduced. The army paid 75 cents per pair.

The Elliott device was first brought to the attention of the service in March of 1905 when the inventor requested permission to go on board one of the ships of the North Atlantic Fleet, prior to the then pending target practice, and fit it to one or more gun's crew for the purpose of having it thoroughly tested and reported upon. At that time the bureau was not familiar with the device and, though there seemed no reason for apprehension in the proposed test, the bureau did not feel warranted in recommending that it be made the subject of official test and report. Subsequent to that time a number of observations as to the efficacy of the device were made at various times and places and by different officers and, with minor exceptions of questionable reliability, all the reports exhibit a striking unanimity in its favor. This being the case and the bureau having taken up the subject of ear protection for definite study, under date of April 27, 1907, a supply of the device was requested in order that a careful, thorough, and scientific test under all conditions could be made and an intelligent, accurate estimation of its efficiency reached. This supply was placed in the hands of Surg. W. M. Garton on the *Ohio*. The report, dated March 27, 1908, which he submitted, is as follows:

> The following report is compiled both from a personal investigation and the observations of different officers on board this ship:
>
> The ear protectors were first properly fitted to the individual case and the officers instructed how to apply them. At first there was a slight uncomfortable feeling and a slight roaring in the ears which rapidly passed away. Ordinary conversation could be plainly heard and understood—hence all commands comprehended and obeyed.
>
> During target practice, both record and salvo firing, and also the calibration tests and the relative position of the wearer as compared to the muzzle of guns of various calibers, was thoroughly tested, with the universal verdict that there was no sharp concussion or any inconvenience experienced.
>
> In individual guns the shock of concussion was much greater, the semiautomatic 3-pounders being the greatest offenders.

The neutralization of sounds of different guns of various sizes and calibers coming from different angles in salvo firing as compared with record practice was carefully noted and taken into account.

Several experiments were made—namely, cotton in one and the "Elliott ear protector" in the other; cotton in both ears, and nothing in either ear—with the result that there was a marked difference and especially so in the first case, where the ear having the "protector" suffered no shock, while with the other having cotton, there was some slight inconvenience experienced.

In the secondary battery, the concussion was very severe where nothing was used, but with the "protector" no shock was experienced.

I am firmly of the opinion that rupture of eardrums with this device is impossible, and any adverse reports are due to an ill-fitting protector or improper adjustment, or both.

No discomfort existed after gunfire, which was not the case where cotton or nothing had been used.

I would suggest that all guns' crews be supplied with this device.

It would seem from the above experiments and statement that the Elliott ear protector constitutes a device of prophylactic value in a most important direction, and it is believed desirable that it be placed within the reach of every man on board battle ships. The first requirement to be observed in using the protector is that it must be properly fitted. As there are nine sizes this can be easily done, but the size suited to each individual should be determined by a medical officer and made a matter of record as a guide to the paymaster in laying in a stock and for the purpose of any future distribution to the members of the crews. Whether or not the Government should issue a certain number of sets to each ship (for the guns' crews, for example) is a matter for higher decision; but, in any case, a supply should be kept in the canteen so that the device can be purchased by those who especially need it. It is recommended that the department direct, at least, this provision and that some effective protection of the ears by those exposed to concussion be made obligatory.

The bureau has also sent to the medical officer of the *Ohio* for test a composition, like molders' clay, called "plasticene," which, incorporated with a little wool by kneading, has been adopted by the British Admiralty as a means of ear protection during heavy gun firing. It may be that this will prove to be a device quite as efficient as the Elliott protector, in which case a choice may be made in the option of each individual.

FLEET SURGEONS—THEIR DUTIES IN RELATION TO FLEET MEDICAL DEPARTMENT ORGANIZATION.

This subject was discussed at some length in the report for 1907, and the department's attention was invited to the great desirability of and pressing need for a change in the Navy Regulations and, if necessary, a change in the law, to the end that this office may be vested with greater power, in respect to the medical organization of the fleet, and given a broader range of usefulness and a more liberal opportunity to develop a united efficiency in the medical branch.

The bureau considers it sufficient at this time to merely invite the department's attention to the subject as presented last year. Medical Inspector H. G. Beyer has been directed to prepare a scheme concerning the duties of fleet surgeons on an extended basis, as contemplated by the bureau and suggested in its report for 1907, and also to formulate a set of regulations for the government of fleet surgeons in the performance of such duties as may be deemed desirable and proper under the changed conditions of fleet organization. This officer is now studying the question, and his conclusions, when submitted, will form the basis of future recommendations in the matter.

THE CRUISE OF THE ATLANTIC FLEET.

The activity of the bureau in anticipation of this event commenced on August 29, 1907, immediately following the receipt of an order from the department directing that necessary steps be taken to prepare the Atlantic Fleet and its auxiliaries for a cruise to San Francisco, and at the same time communicating the information that the torpedo flotilla was to sail not later than December 1 and the battle ships not later than December 15, 1907. On the above date, therefore, as the initial step this bureau addressed the commander in chief of the fleet, requesting him to issue instructions to the senior medical officers of the ships concerned to submit requisitions for supplies at the earliest possible time, the medical officer in command of the naval medical supply depot being advised of this action, so that he might place himself in readiness to meet the unusual demand. In approving requisitions the greatest liberality was observed, and by means of regular and special requisitions each ship was thoroughly equipped to meet any possible contingency within the ability of a fighting ship to handle. Thirty thousand units of antidiphtheritic serum and 100 vaccine points, over and above the supply requested, were also sent to each ship as a reserve for emergency, and no other foreseen need was neglected.

While the ships were at New York undergoing repairs and being put in condition for the long voyage, the conditions of weather, environment, and circumstances affecting the life of these crews were altogether conducive to illness, but fortunately the morbidity rate was not excessive, and the naval hospital at that place proved fully capable of accommodating the patients sent to it. The Norfolk hospital, however, was being extensively renovated, so that its capacity was greatly reduced, and in face of the probable demand which the fleet would make upon it during the week of its rendezvous in Hampton Roads this fact was a cause for concern. Directions were given on November 12, 1907, to do everything possible under the existing state of affairs in preparation to receive the sick transferred from the fleet prior to its sailing December 16, 1907. The provisions which were made, though necessarily makeshift in character, proved sufficient for the care of the bedridden cases, and the ambulant cases were immediately transported to one or another of the hospitals farther north.

Early in this period of preparation, having in mind the large number of raw recruits on the ships and the importance placed upon the success of the cruise, and with a view to making every possible provision for the care of serious or infectious cases and for the management of epidemics that might reasonably be expected to occur in so large a force, the bureau sought to have the *Relief* commissioned and brought around to accompany the fleet. The recommendation to this end was born of a desire to give the best care and most promising chance for life to the sick and to insure the integrity of the fleet and an uninterrupted cruise. This recommendation was, however, not approved, and on November 6, 1907, owing to the fact that the capacity of the hospitals on the Pacific coast was barely sufficient for the ordinary requirements of the sick on that station, and in view of the material increase in the personnel, which would result from the presence of so many additional ships, the bureau strongly urged that the hospital ship *Relief* be commissioned as soon as practicable, so that a floating hospital of 200 beds might thus be made available to increase the sick accommodations by the time the Atlantic Fleet arrived. Preliminary to enlarging the facilities for the naval sick on the west coast, the bureau ascertained the approximate total complement of the fleet and then directed the medical officers in command of the naval hospitals at Mare Island and Puget Sound to increase the capacity of their respective hospitals by every possible means. The medical officer in charge of the naval medical supply depot at Mare Island was also directed to take the necessary steps in preparation for replenishing the medical supplies of the different ships well in advance of the fleet's arrival.

In the meantime the bureau was scrutinizing the health reports of West Indian and South American ports included in the itinerary for the cruise of the Special Service Squadron, which had gone in advance, and of the battle-ship fleet with its auxiliaries, and the torpedo-boat flotilla. The health conditions at Rio de Janeiro, Brazil, were the most closely watched, and special reports were received from that port through the courtesy of the Public Health and Marine-Hospital Service. While, under ordinary circumstances, the reported health conditions along the route would not have been disturbing, a consideration of the large number of men—a large part of them raw to the service and untrained in the care of themselves in strange communities—who would go ashore on liberty, served to make these reports less benign in their nature. Several particularly striking ones were communicated to the department with a recommendation that their import be transmitted to the commander in chief, or for such other action as might be indicated.

The fleet surgeon and all other medical officers in the fleet, with but one or two unavoidable exceptions, were entirely capable, and enjoyed the confidence of this bureau, and, moreover, a medical officer's first duty, upon entering port, being the investigation of health conditions before general communication with the shore is allowed, there was a certain guaranty against any undue exposure to disease influences. Nevertheless, excellent as the medical equipment of each ship was, and efficient on the whole as were the officers and men of the medical department of the fleet, the provisions were inadequate for so large a number of men on so long a cruise in foreign waters. In this light the bureau viewed the departure of the fleet without a hospital ship with considerable anxiety, and on December 13, 1907, addressed the department in a letter which, after inviting attention to the probability that many sick would have to be sent to hospitals before the ships passed the Straits of Magellan, continued as follows:

> The number of such sick would, of course, be considerably increased in the event of epidemic diseases on these large ships, and it would be most desirable to have some ship which could relieve the battle ships particularly of all infectious or contagious cases. The imminence of conditions that would make this necessary should lead the department to consider holding some available ship in readiness for this purpose, to act as far as possible in place of a hospital ship and to bring home cases that may have to be left along the route.

> The commissioning of the *Relief* to meet the fleet at Magdalena Bay will relieve any anxiety in regard to necessary hospital care of patients from that time on.
>
> The bureau had in mind the use of the *Relief* on this coast and the *Solace* on the west coast, but as these vessels are not now available it seems that we should be prepared with some other vessel to meet demands for the relief of the sick in the fleet on the Atlantic coast, even though such vessel would not be entirely suited to the purpose. The *Brooklyn* or the *Prairie* would seem to be the most available and the best fitted, if needed, and it is recommended that one or the other of these ships be held in readiness to meet without delay any such emergency as this bureau has in mind.

The precautionary provisions therein suggested were not approved, and the bureau was, therefore, the more anxious when, immediately following the departure of the fleet from Hampton Roads bound for Trinidad, the colliers and supply ships having preceded, information was received from the Surgeon-General of the Public Health and Marine-Hospital Service which indicated that Trinidad was infected with yellow fever. The Treasury Department had in turn received this information from the Department of State, which reported 7 cases, with 4 deaths, of the disease at Bridgetown, Barbados, taken from the British cruiser *Indefatigable*, which had arrived there from Trinidad. As a matter of fact there had been a small epidemic of the disease in Trinidad (17 cases with 6 deaths) from June 1 to August 24, and on November 9 another fatal case had occurred. The reasonable conclusion that yellow fever was active at that port was indeed disturbing under the circumstances, and the same day on which the information was received (December 17, 1908) the bureau addressed the department as follows:

> The attention of the department is called to the accompanying letter from the Surgeon-Geenral of the Public Health and Marine-Hospital Service, received a few moments ago. It seems from this letter and from the information the bureau is enabled to procure since receiving it, that Trinidad is an infected port, and it seems advisable to communicate with the American consul at Trinidad directing him, if such be the case, to communicate promptly with any of the vessels touching at this port, notifying them of the fact.
>
> The greatest danger of infection, if any, seems to be to those vessels which have preceded the battle-ship fleet.

Subsequent reports from the commander of the Special Service Squadron and from the commanding officer of the *Panther* and from the United States consul at Port of Spain, Trinidad, allayed much of the apprehension regarding yellow fever, but there was still occasion for concern in other directions, as the sick record of this first leg of the cruise between Hampton Roads and Trinidad shows. Among an approximate daily average of 217 patients, the first few days out, were included 2 cases, 1 of general peritonitis, landed at San Juan by the *Missouri;* 1 case of pneumonia, landed at Culebra by the *Illinois*, for transportation to San Juan by tug; 1 death from cerebro-spinal meningitis on the *Alabama*, buried at sea; 1 case of diphtheria on the *Louisiana;* 1 case of scarlatina and 5 of measles (one of them the navigator) on the *Connecticut;* 2 cases of typhoid on the *Maine;* 1 case of typhoid, 1 tuberculosis, 1 hernia on the *Vermont;* and 2 of pneumonia, 1 of typhoid, and 1 of tuberculosis on the *Virginia.* The typhoid cases were placed in a hospital at Trinidad; the case of tuberculosis and of hernia were brought home on a collier. Active measures were promptly taken to prevent a sweeping outbreak of any of the various infections in the fleet by putting ships and personnel in an improved general sanitary condition, but this early and unfortunate outbreak of disorders furnished another object lesson of the need of a hospital ship, and also the danger of overcrowding ships on the eve of sailing with a large number of recruits from the receiving and training stations.

Just as public opinion is throwing its weight in the balance toward the cause of universal amity and is guiding the action of representatives in the great peace movement, so this same potent influence is being irresistibly felt in humanitarian and health movements, and is determining the progress of the world in all that makes for the physical, mental, and moral uplift of mankind. How else can we explain the action of the commander in chief of the fleet, Rear-Admiral R. D. Evans, in diverting the course of two ships of the fleet in the interest of a few seriously sick just after starting on the cruise to the Pacific? That incident furnishes a pleasing sign that the lesson of the times has not been lost to the naval service, and that it is operative even in matters which might be, as they in the past were, regarded as comparatively trivial. It was only regrettable that a hospital ship was not present to relieve him of the necessity of making that expensive sacrifice and to make it possible for him to preserve the fleet intact.

The fleet medical officer, Surg. L. W. Curtis, reports that the continuation of the cruise from Trinidad to Magdalena Bay, via the Straits of Magellan, was distinguished by nothing beyond the ordinary as relates to sanitation in the fleet—that is to say, no infections (other than venereal) and no invasions by epidemic disease resulted from visits to ports en route, at two of which, Rio and Callao, plague and smallpox existed. It is highly probable that most of the cases of epidemic diseases which developed early in the cruise were the result of infection which was acquired before the sailing of the fleet, but lasted over and did not become manifest until the ships were at sea. As a matter of fact, there was a marked improvement in the general health as time passed, which is shown by a comparison of the statistical reports for the quarters ending December 31, 1907, and March 3, 1908, as exhibited in the following table of infectious diseases:

Diseases.	Number of cases aboard 12 battle ships (force approximately 11,000 men) for quarter ending Dec. 31, 1907.	Number of cases aboard 16 battle ships (force approximately 15,000 men) for quarter ending Mar. 31, 1908.
Itch	11	9
Grippe	351	71
Measles	45	3
Typhoid	21	9
Bronchitis	57	57
Tonsillitis	215	151
Total	700	300

The percentage of endemic cases for the quarter ending December 31, 1907, was 6.4; for the quarter ending March 31, 1908, it was 2. The number of cases sent to hospital from 12 ships during the first-mentioned quarter was 262; that during the latter quarter was 152. Important facts bearing upon this improvement are reviewed in the section "Barrack buildings, etc., for recruits and the crews of ships undergoing extensive repairs." In the course of the cruise from Hampton Roads to Magdalena Bay, around South America, there were 9 cases transferred to hospital—2 at San Juan, 1 at Culebra, 5 at Trinidad, and 1 at Rio. There were 7 deaths—1 pneumonia, 1 meningitis, 1 nephritis, 1 fracture of skull, 1 typhoid, and 2 tuberculosis—several of which might have been saved had the *Relief* been present. There are also an increasing number of hospital cases, which has swelled to 152 by the time the fleet reached Magdalena Bay, and the need of relieving the fleet of the burden which they imposed on the fleet's efficiency, as well as of the anxiety for their welfare and that of the ships' companies, to which the tubercular sick were a menace, became so urgent before the hospital ship arrived that the fleet medical officer felt called upon to make a recommendation to the commander in chief that they be transferred to the naval hospital at Mare Island, Cal., at the earliest opportunity. It must have been a welcome ending to the long cruise, to the sick who had been patiently waiting and to those who were concerned for them, when signal was made that the *Relief* had been sighted.

Aside from these specific cases the physical condition of the personnel of the fleet upon its arrival at Magdalena Bay is said to have been excellent on the whole, but a marked difference was apparent between the deck force and the engineer's force in this respect—and this in spite of the facts that the complement was full; that the men performed their duties in easy-steaming watches; that the men at no time worked under pressure, as the fleet maintained the standard speed of 10 knots per hour; and that they received the close attention of medical officers, who instructed them in the personal care of themselves under the peculiar conditions which their duties imposed. Surg. C. H. T. Lowndes reports that on the *Virginia* the deck force had gained in weight and grown strong and ruddy and were bright and cheery in disposition, while every member of the engineer's force to a more or less extent had lost weight, had become anæmic, and showed a marked mental change, many having real or imagined bodily ills, and others being suspicious and fancying wrongs, which in two cases terminated in insanity. Taken all together, an abnormal mental and physical condition existed in the engineer's force owing to the life and work in excessive heat below decks away from a proper amount of sun and free air, which is an indispensable requirement of the duties of this special department. Fortunately this regrettable mental and physical state changed for the better upon reaching the California coast, when those serving in the fire and engine rooms could leave their haunts between decks and live more on deck in the open air and take their run ashore on liberty.

Notwithstanding the improvement above noted as the cruise progressed and the fact that the health conditions remained normal, in that no ship suffered epidemic invasion, the cruise has demonstrated that the sick quarters of individual ships are inadequate to meet the ordinary needs when cruising out of the reach of hospitals. On the voyage around to Magdalena Bay it became necessary, in some instances, to improvise shelter on deck and to utilize bridge cabins for special cases, and on at least one ship a vacant admiral's cabin was used in the treatment of two cases of pneumonia, one case of typhoid, and one case of tuberculosis. Six cases of typhoid were transferred to foreign hospitals en route, which was a necessary disposition for the protection of the well and in the interest of the sick themselves. One hundred and fifty-two hospital cases of different characters were transferred from the ships of the fleet to the *Relief* upon her arrival in Magdalena Bay, thus serving to relieve the overcrowded sick bays and afford the proper facilities for the treatment of serious or infectious cases, and, it may be observed, that the presence of a hospital ship with the fleet at all times would have obviated the deficiencies in these respects. These patients should have been transferred to a hospital ship as they occurred, and at no time was the sea so rough that they could not have been transported. In this connection it may be truthfully said that every case of acute active illness which held life in the balance from day to day from the moment of its inception, every case of insanity and every case of infectious or contagious disease which was retained of necessity on board a battle ship or transferred to one of them from the auxiliaries or torpedo flotilla was a menace to the morale and health of that ship. This is peculiarly the case with the insane and tuberculous sick, and in the latter disease, also, owing to the close constant contact of the members of the crew and other conditions of life on board the modern battle ship, there is unusual liability of spreading and susceptibility to the disease.

The cruise to the west coast taught five important lessons which it will be well to profit by in the future. It was essentially a test cruise under conditions that would obtain in time of actual war, and the needed improvements or reforms that were demonstrated must not be lightly considered.

To recapitulate, it may be stated that the cruise has demonstrated—

First. That the sanitary and hygienic conditions and, consequently, the health of naval personnel on board seagoing ships, are strikingly better when on a cruising basis as contrasted particularly with the state of affairs which usually obtain when at navy-yards.

Second. That caution is necessary against transferring men from training station and receiving ship to cruising ships too hastily and without a careful investigation of their condition or a period of observation in the case of recruits.

Third. That there is especial need of watchful hygienic supervision of the engineer's force, and the need, also, of inaugurating such remedial measures, in relation to their peculiarly confining duties and habits of life on board ship as will more or less effectually prevent the progressive development of the deteriorated physical and mental state which was noted on some of the ships and which had reached a marked degree when the fleet arrived at Magdalena Bay.

Fourth. That the sick spaces on board individual ships are not only not excessively capacious, but actually inadequate under the conditions above stated.

Fifth. That there is a real need for and a definite value attachable to a hospital ship as a fleet auxiliary.

HOSPITAL SHIPS.

In the bureau's report for 1907 this subject was discussed in the abstract with reference to the needs of the navy as shown by past experiences and the conception of a large field of usefulness for such auxiliaries. The contention for hospital ships in the United States Navy dates from the late war with Spain, when their value was fully realized, and the bureau's persistent and repeated appeal for the department's serious consideration of the matter was inspired by the growing importance of such provision. The arguments in support of the desirability of hospital ships were strong on both the military and humane side of the question, and each succeeding year gave additional evidence that they were not only desirable, but actually necessary. It is an interesting fact that during all this time the question of a hospital ship never once elicited an expression of denial or even serious doubt as to the desirability and usefulness of such an auxiliary, and it is appreciated that a cruise such as that in which the vessels of the Atlantic Fleet are now engaging offers the best possible opportunity to demonstrate its value and practical feasibility. The lack of earlier opportunity and the prolonged idleness of the *Relief* represented no active opposition to hospital ships per se, but hung on a point which happily no longer deprives the service of a long-felt need.

In judging what is best for the service and conducive to its all-round well-being and ready power, a broad view should be taken, and judgment should rest upon a comprehensive understanding of the value of each branch of the service to the development of a complete and effective whole. It is by this means—giving opportunity for fullest individual growth and adjusting one branch with another in the larger organization—and by this alone that he who is charged with responsibility can hope to attain mastery over any situation that may arise.

In this age of interdependence, when no clearly defined line of human endeavor can be stigmatized as unimportant, those who would embark safely in large undertakings must recognize the indispensable part which each branch of the service plays in the vital game, and must bring all the associated forces together in harmony and utilize them to the full in promoting general efficiency and in furthering the enterprise upon which in emergency the honor of the country may rest or be broken.

When the last report was submitted the bureau did not anticipate the long cruise now being engaged in, and its recommendations were for the indefinite, albeit near, future. The cruise as projected, however, represented a specific need for a hospital ship and created occasion for immediate action in the matter. On November 6 the bureau addressed the department in a letter which read in part as follows:

* * * * * * *

4. The bureau is of the opinion that the presence of this ship in active commission will provide not only additional hospital accommodations, which in view of the proposed cruise of the Atlantic Fleet will be urgently needed on the Pacific coast, but by accompanying the fleet in all of its larger movements and relieving it of cases that at present have often to be kept on board will conduce to the greater efficiency of the fleet.

* * * * * * *

6. All the necessary arrangements for the commissioning of this ship have been considered by this bureau in advance, and her stores are either on board or at the navy-yard, Mare Island, in readiness to be placed on board at short notice.

7. As it is the bureau's wish that the *Relief* be in full working order and available for active work with the fleet on its arrival on the Pacific station, it is deemed advisable, on account of possible delay arising in connection with the

necessary work under other bureaus, to make timely recommendation to this end, and to respectfully urge that the department's directions for placing her in commission be promptly given.

The events which marked the consideration of this question thus initiated have no place in this report. It is enough that in compliance with departmental orders the *Relief* was placed in service at 1 p. m. on February 6, 1908, with a view to its meeting the fleet at Magdalena Bay. Her further service was left undetermined for the time being. At the time of being placed in service she was in dry dock, but a large part of both medical staff and civilian complement were on board and the usual official ceremonies were observed. The Red Cross flag was hoisted at the "fore," but later, under instructions from the department, it was flown at the "main" in lieu of the commission pennant. Soon after coming out of dry dock her complement was filled and she had been completely equipped, the only thing which delayed her entire preparedness for sea being the tardy completion of repairs in the engineer's department. It was what the bureau feared when urging the department's prompt action toward placing the vessel in commission.

On January 17 the bureau again addressed the department in a letter which in part read as follows:

> To be fully prepared to meet the responsibilities which devolve upon the Medical Department of the Navy the bureau is taking steps to perfect plans for the alteration, outfitting, and organization of another hospital ship.
>
> Your attention is invited to the possible need of such additional provision for the care of the sick and injured afloat, and the bureau respectfully requests the designation of a ship of the navy, which would be available for this purpose, so that complete plans may be drafted for her conversion without loss of valuable time should an emergency arise. The U. S. S. *Solace* would seem to be suited for this purpose, as she was employed as an ambulance ship during the late war with Spain and could be most easily, expeditiously, and economically altered and equipped. It is requested that the *Solace* or some other ship equally adaptable to the purpose in question be officially designated by the department, so that the bureau may carry out the recognized policy of preparation for war during time of peace and prevent the diversion of the ship planned for to other channels of service. Any chance of an embarrassment of this nature should be carefully guarded against, and would be by the action suggested.

The *Relief* was finally reported as being in cruising condition, and on March 22 she left the navy-yard and dropped anchor off San Francisco. On March 24 she sailed for Magdalena Bay, arriving the night of March 27, and on the following day began the transfer of the sick from the fleet. As stated elsewhere, the admissions numbered 152, and these embraced a great variety of cases of more or less severity, though all were of a gravity demanding hospital surroundings and treatment, particularly the cases of exhausting diseases, like typhoid and tuberculosis, and mental disorders and major surgical conditions. The relief which the hospital ship brought to the fleet and to the sick at this stage of the cruise was invaluable and saved the expense and exposure of the sick incident to the unsuitable accommodations of a merchant ship, if such could have been found, to transfer the 152 sick to Mare Island. But the arrival of the *Relief* was also most timely in view of the pending target practice, which would have added incalculably to the many adverse conditions by which the sick were already unavoidably surrounded on board the battle ships. It would have been an unpardonable cruelty to have neglected other provisions and left the sick to suffer what then would have been the unbearable noise and shock of big gun fire—to say nothing of the inevitable impairment of efficiency in the drill which would certainly result by a consciousness among the participants that they were inflicting distress and actual harm upon their sick and helpless shipmates with every individual shot. The circumstances of war and peace are vastly different in this respect, for what must be endured in the one instance is not necessary or tolerable in the other.

A warship of to-day is uncommonly and wonderfully complete in all its appointments, but, though provision is made for the sick, it is designed for well men, and its operations are always hampered by even a few sick. By getting rid of its sick the fleet was allowed perfect freedom from the restrictions their presence would naturally impose; while on board the *Relief* the sick enjoyed the required quiet and light and air and were given such thorough and special treatment as can not possibly be afforded, in spite of the excellent equipment, on any battle ship where the interests of so many men must be looked after. The medical officers are usually kept busy enough keeping the men well, for contrary to the general belief their first duties on board ship are hygienic and sanitary. As a result, when there are a number of cases of serious illness, especially of an infectious nature, aboard a vessel they are obliged to turn from their regular duties to the special ones, which then demand attention to the few at the expense of the many.

Among the cases transferred to the *Relief* between the date of its arrival at and departure from Magdalena Bay were 15 insane patients, for which there was no provision in the absence of the *Relief*. In fact there were many cases whose recovery was retarded or jeopardized for want of the facilities, such as X-ray apparatus, etc., which the hospital ship provides. Many capital operations were performed soon after the cases were received on board, and not one case went amiss or ended fatally. The *Relief* arrived at San Francisco from Magdalena Bay with its load of sick on April 7, and then proceeded to Mare Island and immediately set about transferring the serious and chronic cases to the naval hospital preparatory to rejoining the fleet at San Diego, Cal.

The excellent results attending this first trip and the accomplishment of its errand without hitch or accident, either as regards the navigation of the vessel or the handling and care of those brought aboard as invalids, made a creditable beginning.

The sailing master is a man of tried ability with previous experience in the naval auxiliary service, and his officers and crew proved satisfactory to him.

The medical officer in command and his staff of assistants and older hospital corps men were all specially selected and, in conformity with the bureau's announced policy to utilize the *Relief* as a sort of postgraduate training school for apprentices, the class just being graduated from the Hospital Corps Training School in Washington, D. C., was transferred to that vessel in a body. These men and all the others attached to the *Relief* acquitted themselves most worthily in every way—in their attention to duty, their drills, their general bearing, and their behavior.

There was perfect harmony and cooperation between the medical and the civilian parts of the ship's organization and the paymaster's division. No trouble or friction occurred in giving or carrying out orders in the navigation of the ship, and the hospital part ran smoothly.

There is hardly need to describe the arrangement and equipment of the *Relief*. That has been done by Surg. W. C. Braisted in previous reports, and none but minor changes have been made. It is sufficient to say that, though she represents an adaptation and for that reason does not embody some very important features of a hospital ship, and can never be entirely satisfactory, she is well equipped for the care of all sorts of cases, and is capable of illustrating the usefulness, and thereby proving the need of such an auxiliary in time of peace as well as war.

It is regrettable that the *Relief* was not equipped with a wireless outfit, for that means of communication would be especially useful on a hospital ship. When out of the usual signal distance it could thus be called to remote ships and could keep in touch with the fleet at a distance. Moreover, through the information which, by its presence, could be received, final preparation could be made to meet the particular needs in a grave disaster of any character while steaming to any locality in obedience to a call. And again on approaching port with a load of patients, it would serve to announce the ship's approach so that arrangements could be made ahead for the care of the sick and wounded and for their immediate and expeditious transportation to the hospital.

Thus far the career of the *Relief* with the Atlantic Fleet has been marked by perfectly agreeable and comfortable official relations, and has been attended with such success in fulfilling her purpose that she seems, even in this short time, to have justified her existence, and to have done much toward proving the wisdom of those whose decisions made her services possible. No little credit for this record is due to the medical officer in command.

The announcement that the *Relief* would accompany the fleet, instead of preceding it, during the remainder of its circumnavigating cruise was extremely gratifying to the bureau, and was in the nature of a declaration that the department foresaw the probability of the vessel's value to the fleet during its protracted isolation from United States naval stations. The decision would seem to have been based upon the record of services already rendered by the *Relief* and to have been finally confirmed by a possible portent in the two epidemics which overtook the battle ship *Nebraska*. The first invasion was scarlet fever, which was discovered among the crew just as the fleet was about to sail from San Francisco, and operated to detain that ship for fumigation. The second invasion was diphtheria, which became prevalent after the *Nebraska* had rejoined the other ships and just as they were about to sail from Honolulu. All these cases were transferred to the *Relief*, which had accompanied the main command, and the *Nebraska* was able to continue on the cruise without further delay. It is hoped and believed that the record of the *Relief* from the west to the east coast of the United States will be such as to give the department no occasion to regret its decision; but, on the contrary, will have demonstrated the importance of an auxiliary of that character to the conclusive satisfaction of all, and will have led to an acknowledgment that the hospital ship as a class has earned the right to a permanent place in the organization of every fleet—not alone by virtue of the varied services it may render in the interest of humanity and military efficiency, but by virtue of its tried practical working feasibility as regards official relations and military requirements and procedures.

In the conviction that a hospital ship is, as the bureau has represented it, an absolutely necessary component of every properly organizd fleet, and that the *Relief* will furnish prime evidence that that is the case, it is again earnestly recommended that Congress be asked to appropriate $3,000,000 for the purpose of building two specially designed hospital ships which will have a capacity of 300 patients each and be thoroughly in accord with modern standards as regards arrangement, aseptic construction, and equipment, which will be speedy as far as may be consistent with reasonable stability, and which will be fitted with all the appliances and gear necessary to accomplish the safe and comfortable transfer of patients to and from them; in fine, hospital ships that will meet all requirements incident to the very best care of the sick at sea and imposed by the conditions of naval service. There should be two such ships for service in times of peace, one in the Atlantic and another in the Pacific, either off the home coast or in Asiatic waters, wherever naval ships may be congregated in large numbers. There would be ample employment for them even during peace times, particularly under the present naval policy of longer cruises, to warrant the recommended expenditures, and in this connection it is to be observed that as ships of this class would not become obsolete as do types of battle ships, the single outlay would answer for many years. At least two hosiptal ships are needed now, but they would be in extremest demand should the country become involved in war, and to delay recognition of the need until the eve of such an engagement would most certainly be an improvidence fraught with serious consequences. The United States can not rely on adapted passenger ships to fill the need in emergency, as to a certain extent can Great Britain and Germany and even Japan. She has not a large number of suitable passenger ships flying her flag which she could charter in time of need. The number of such ships, indeed, is quite small, therefore it would appear as if dependence must be almost wholly placed upon specially built vessels. Even granting that our naval authorities can command the services of some fairly adaptable vessels of the merchant marine, it is still necessary to have two or three specially constructed vessels. These ships would form no more than a nucleus of the required number of hospital ships in time of war, but as such they would be invaluable in tiding over the first stages of belligerent activity until available commerce ships could be transformed.

It must be borne in mind that if these United States are ever so unfortunate as to be involved in another war a more formidable foe than in the late war will have to be met. It is the business of the navy to prepare for war in time of peace, and to be fully prepared is to be on the road to victory—yet, the United States Navy can hardly regard itself so prepared without ample provisions for the care of the sick and wounded. Hospital ships as integral parts of fleet organizations must be viewed and estimated in the light of their true value to a perfected institution and of their probable contribution to ultimate success under stress of arms. "It is one thing to cruise in home waters within easy reach of hospitals; it is a vastly different thing to go out into the open, separated by many leagues from a naval base—not as a small contingent designed for a special purpose, but as a large battle fleet, prepared for any and every emergency." The *Relief* has added one more element to the self-support and entire independence of the great fleet, and has thereby increased its preparedness and power. The faultless precision and prosperity with which the cruise of the Atlantic Fleet has thus far been conducted is no less due to the hospital ship than to the presence of supply and repair ships. Moreover, by placing the *Relief* in service, the United States has promoted the aims of the Geneva convention and The Hague conferences, and has made a notable concession to the demands of a sovereign people for adequate government provision that those who are stricken in its service may be afforded the best care and the utmost assurance of recovery.

It is timely to here summarize the services which hospital ships would render and the uses to which they might be put.

First. Stationary floating hospitals, furnishing hospital facilities at any place or as base until permanent accommodations could be provided or while the renovation of existing institutions is under way. They would also serve to immediately relieve the situation which would result from destruction by fire of the hospital at any station. Among the advantages under such circumstances would be a dependable water supply and easy disposal of sewage.

Second. The transportation of the sick and wounded, that had already undergone a period of treatment and were permanently or indefinitely disabled, from one station or hospital to another. This service would apply in case of pressing need of complete evacuation of any hospital or station.

Third. Ambulance service, conveying the sick and wounded from ships to home ports in times of peace and war.

Fourth. Navigable floating hospitals to accompany a fleet in all evolutions and in which medical and surgical treatment could be efficiently carried on for as long a period as necessary. In this respect they would free the commander in chief from a disabling dependence upon base hospitals, and would relieve him from more than momentary consideration of the sick or anxiety for the well, upon the appearance of communicable disease, in conducting military exercises and carrying out a programme of maneuvers without further interruption than would be necessary in transferring the sick to the hospital ship at hand, which could be made a drill in itself either in preparation for an evolution or during it by having the ship bearing sick drop out of formation temporarily on signal to transfer the patients and then rejoin and continue in the evolution being executed.

Fifth. Medical and surgical store ship, from which to replenish the supplies on the individual battle ships. The need of reserve dressings, etc., makes this an important factor.

Sixth. Provision for the sick, apart from the spaces assigned to this purpose on every battle ship, which would serve to confer immunity from quarantine. Every ship, no matter what its character or errand, is subject to the rules of this measure for the protection of communities when quarantinable diseases are present on board, and the opportunity for exemption from the delay involved, which hospital ships present, is an aspect of their usefulness apparent to all.

Seventh. Ships equipped with facilities for the disinfection of bedding and personal effects, etc., of those among whom an infectious disease has developed on board a battle ship, and apparatus for the fumigation, if need be, of a ship's compartments. The lack of this during the first part of the cruise was felt throughout the fleet.

Eighth. Ships equipped with facilities for preserving the dead so that remains may be brought or sent home for burial by the families instead of being committed to the sea or interred on foreign shores as necessarily the case during the fleet's voyage around South America.

Ninth. The inevitable benefit which they would confer upon the morale of the command as pointed out in the report for 1907.

STATISTICS.

Statement of the work done by the Record and Pension Division of the bureau during the fiscal year ending June 30, 1908.

Pension cases remaining on hand June 30, 1907	21
Received during fiscal year ending June 30, 1908	1,701
Answered during fiscal year ending June 30, 1908	1,692
Remaining on hand June 30, 1908	30
Cases for board of medical examiners received and answered	431
Cases for retiring board received and answered	36
Reports of death received	367
Reports of medical survey received and acted upon	2,711
Cases from Civil Service Commission received and answered	115
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	4,452

The following table shows the record of enlistments and rejections for the year 1907:

Where examined.	Number examined.	Number accepted.	Number rejected.	Color-blind.
Receiving ships:				
Franklin, Norfolk, Va	580	395	185	6
Hancock, New York	1,517	932	585	65
Independence, Mare Island, Cal	368	276	92	3
Lancaster, Philadelphia, Pa	302	192	110	4
Philadelphia, Puget Sound, Wash	472	370	102	18
Wabash, Boston, Mass	159	142	17	....
Total	3,398	2,307	1,091	91
Naval and marine recruiting stations and rendezvous:				
Baltimore, Md	783	414	369	15
Boston, Mass	1,363	886	477	35
Buffalo, N. Y	687	476	211	13
Chattanooga, Tenn	371	268	103	1
Chicago, Ill	2,165	1,086	1,079	68
Cincinnati, Ohio	952	492	460	17
Cleveland, Ohio	1,059	474	585	54
Columbus, Ohio	319	179	140	15
Denver, Colo	1,077	748	329	22
Des Moines, Iowa	353	179	174	7
Detroit, Mich	814	493	321	82
Duluth, Minn	347	231	116	3
Hartford, Conn	293	200	93	10
Indianapolis, Ind	598	363	235	18
Kansas City, Mo	1,188	671	517	35
Memphis, Tenn	492	268	224	10
Milwaukee, Wis	479	319	160	3
Minneapolis, Minn	1,046	589	457	22
Nashville, Tenn	260	156	104	6

Where examined.	Number examined.	Number accepted.	Number rejected.	Color-blind.
Naval and marine recruiting stations and rendezvous—Cont'd.				
New York, N. Y	3,438	2,224	1,214	50
Oklahoma	636	385	251	19
Omaha, Nebr	489	330	159	25
Philadelphia, Pa	2,600	1,200	1,400	34
Pittsburg, Pa	1,667	820	847	73
Providence, R. I	275	180	95	7
San Francisco, Cal	658	364	294	15
St. Louis, Mo	2,615	1,635	980	72
Toledo, Ohio	419	260	159	10
Washington, D. C	479	304	175	5
Total	27,922	16,194	11,728	696
Ships, stations, and elsewhere not above specified	12,159	8,044	4,115	180
Grand total	43,479	26,545	16,934	967

Number examined	43,479
Rejected per 1,000 for all causes	389.48
Rejected per 1,000 for color-blindness	22.24
Number of first examinations	39,317
Rejected per 1,000 for all causes	425.44
Rejected per 1,000 for color-blindness	23.93

INSANE OF THE NAVY.

Number of patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1907	178
Admitted during the fiscal year ending June 30, 1908	60
Total	238
Discharged during the fiscal year ending June 30, 1908 (9 died, 31 recovered, 8 improved, 1 unimproved, 2 not insane, 1 eloped)	52
Remaining in that institution June 30, 1908	186
Number of patients from the Navy and Marine Corps in the Mendocino State Hospital for the Insane on June 30, 1907	5
Admitted during the fiscal year ending June 30, 1908	26
Total	31
Discharged during the fiscal year ending June 30, 1908	5
Remaining in that institution June 30, 1908	26
Patients under treatment in both institutions June 30, 1908	212

NAVAL HOSPITALS, 1898.

Hospitals.	Number of cases under treatment.				Number discharged to duty.				Number invalided from service.				Number dead.				Continued to next year.	Total number of sick days.	Average number daily under treatment.	Average number of days' treatment per case.
	Remaining from last year.	Admissions and readmissions.																		
		Diseases.	Injuries.	Total.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.				
Annapolis, Md	.....	287	34	321	202	19	221	688.47	24	9	33	102.80	2	2	4	12.46	63	7,542	25.14	23.49
Canacao, P. I	115	601	83	799	424	49	473	591.99	203	37	240	300.30	12	0	12	15.02	74	34,209	93.72	42.81
Chelsea, Mass	80	535	103	718	452	86	538	749.30	77	14	91	126.74	3	5	8	11.14	81	32,061	87.84	44.65
Mare Island, Cal	103	713	106	922	500	70	570	618.22	177	24	201	218.01	11	0	11	11.93	132	34,849	95.48	37.76
Medical School, D. C	17	285	52	354	216	44	260	734.46	35	4	39	110.17	3	0	3	8.47	47	13,243	36.28	37.41
Las Animas, Colo	.....	109	1	110	31	1	32	290.90	19	0	19	172.73	2	0	2	18.18	57	8,511	23.32	77.87
Newport, R. I	69	1,070	80	1,219	1,027	70	1,097	899.92	56	7	63	51.68	11	0	11	9.02	37	24,558	67.36	20.15
New York, N. Y	166	931	112	1,209	762	92	854	706.94	167	22	189	156.32	14	1	15	12.41	114	52,005	142.48	43.01
Norfolk, Va	155	1,260	131	1,546	874	68	942	609.34	382	68	450	291.07	28	2	30	19.40	90	51,580	141.18	83.33
Pensacola, Fla	13	38	2	53	34	2	36	679.24	11	0	11	207.55	0	0	0	....	6	2,906	7.96	54.83
Philadelphia, Pa	45	522	63	630	396	49	445	706.35	99	13	112	177.78	10	1	11	17.46	55	21,009	57.56	33.34
Portsmouth, N. H	14	138	19	171	113	16	129	754.39	25	5	30	175.45	3	0	3	17.54	9	4,936	13.52	28.86
Port Royal, S. C	.....	6	0	6	4	0	4	666.67	1	0	1	166.67	1	0	1	166.67	0	100	.27	16.67
Puget Sound, Wash	7	141	34	182	114	29	143	785.71	12	2	14	769.23	3	2	5	27.47	18	5,668	15.52	31.14
San Juan, P. R	26	112	23	161	95	22	117	726.71	34	2	36	223.60	1	0	1	6.21	7	7,066	19.36	43.88
Sitka, Alaska	3	22	10	35	20	10	30	857.14	2	1	3	85.71	0	1	1	28.57	1	504	1.38	14.40
Washington, D. C	18	197	9	224	168	9	177	790.13	23	4	27	120.53	0	0	0	....	20	3,432	9.39	15.32
Yokohama, Japan	15	67	6	88	60	7	67	761.36	6	2	8	90.91	0	0	0	....	4	4,892	13.40	55.59

STATISTICAL CLASSIFICATION.

The following subdivisions summarize the data embraced in the several statistical tables of this report:

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1907.
2. *North Atlantic Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1907.
3. *Pacific Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1907.
4. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1907.
5. *Receiving ships.*—Names of ships, average complements, admissions and readmissions for disease and injury, sick days, average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1907.
6. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1907.
7. *Force afloat.*—General aggregate, 1907.
8. *Force afloat.*—Detailed statement, 1907.
9. *Navy-yards, marine barracks, and other shore stations.*—General aggregate, 1907.
10. *Navy-yards, marine barracks, and other shore stations.*—Detailed statement, 1907.
11. *Naval hospitals.*—General aggregate, 1907.
12. *Naval hospitals.*—Detailed statement, 1907.
13. *Report of vaccination for the year 1907.*
14. *Prevalence of special diseases (relation by scale).*—For the year 1907.
15. *Mortuary record for the year 1907.*
16. *Deaths in the Navy and Marine Corps (relation by scale).*—During the year 1907.

1. *General view of the effects of disease and injury on the Navy and Marine Corps during the year 1907.*

Average strength of the Navy and Marine Corps[a]	46, 336
Average strength shown by reports of Medical Department[b]	44, 083
Average strength of the force afloat	38, 369
Admissions and readmissions for disease, ashore and afloat	27, 786
Ratio per 1,000 of strength	630. 08
Ratio per 1,000 for the year 1906	658. 47
Ratio per 1,000 for ten years (1897–1906)	649. 65
Admissions and readmissions for injuries, ashore and afloat	4, 841
Ratio per 1,000 of strength	109. 81
Ratio per 1,000 for the year 1906	121. 49
Ratio per 1,000 for ten years (1897–1906)	120. 04
Total admissions and readmissions to sick list during the year	32, 627
Ratio per 1,000 of strength	740. 12
Ratio per 1,000 for the year 1906	787. 23
Ratio per 1,000 for ten years (1897–1906)	888. 18
Daily average of patients	1, 365. 01
Ratio per 1,000 of strength	30. 96
Ratio per 1,000 for the year 1906	34. 06
Ratio per 1,000 for ten years (1897–1906)	32. 55

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[a] Used in computing ratios of deaths and discharges from the service for disability.

[b] Used in computing all ratios except those of deaths and discharges from the service for disability.

Total number of sick days	498,230
Average for each man of Navy and Marine Corps	11.30
Average for the year 1906	12.43
Average for ten years (1897–1906)	11.72
Average days for each case treated	15.27
Average days for the year 1906	15.94
Average for ten years (1897–1906)	14.62
Discharges from service for disease	1,038
Ratio per 1,000 of strength	22.40
Ratio per 1,000 for the year 1906	21.35
Ratio per 1,000 for ten years (1897–1906)	29.61
Discharges from service for injury	286
Ratio per 1,000 of strength	6.17
Ratio per 1,000 for the year 1906	4.91
Ratio per 1,000 for ten years (1897–1906)	4.34
Total discharges for disability	1,824
Ratio per 1,000 of strength	28.57
Ratio per 1,000 for the year 1906	26.26
Ratio per 1,000 for ten years (1897–1906)	29.70
Deaths from disease	162
Ratio per 1,000 of strength	3.94
Ratio per 1,000 for the year 1906	3.28
Ratio per 1,000 for ten years (1897–1906)	4.38
Deaths from injury (including poisons)	101
Ratio per 1,000 of strength	2.17
Ratio per 1,000 for the year 1906	2.28
Ratio per 1,000 for ten years (1897–1906)	2.24
Total deaths from all causes	263
Ratio per 1,000 of strength	5.67
Ratio per 1,000 for the year 1906	5.66
Ratio per 1,000 for ten years (1897–1906)	6.63

Average complements corrected for time, remaining from previous year, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship, for the year 1907.

2. NORTH ATLANTIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Alabama	Year	655	114	29	143	218.32	1,679	4.6	7.02	53	3	4
Alliance	..do	90	100	26	126	1,400.00	707	1.93	21.44	19	....	....
Amphitrite	204 days	71	22	9	31	436.62	230	1.13	8.90	11	....	....
Arethusa	33 days.	10	16	3	19	1,900.00	98	2.97	26.75	....	....	1
Arkansas	92 days.	53	25	10	35	660.38	143	1.55	7.38	7	....	....
Brooklyn	252 days	68	54	12	66	970.59	155	.62	6.33	14	....	....
Celtic	53 days.	19	23	12	35	1,842.11	250	4.72	36.03	21	....	....
Columbia	122 days	121	57	10	67	553.72	493	4.04	11.16	15	....	....
Connecticut	Year	800	665	110	775	968.75	3,964	10.86	13.58	118	2	6
Culgoa	111 days	30	32	5	37	1,233.33	124	1.12	11.43	8	....	....
Des Moines	Year	277	119	20	139	501.81	925	2.53	9.14	18	1	....
Dixie	304 days	154	38	14	52	337.66	664	2.18	11.78	3	....	....
Dolphin	Year	146	97	18	115	719.18	279	.76	5.21	26	1	....
Don Juan d'Austria	65 days.	19	15	3	18	947.37	163	2.51	23.46	4	....	....
Dubuque	Year	157	87	19	106	675.16	572	1.57	10.00	13	....	....
Eagle	..do	60	36	9	45	750.00	202	.55	9.17	8	1	....
Fish Hawk	..do	40	32	4	36	900.00	201	.55	13.75	8	....	....
Florida	99 days.	48	32	9	41	854.18	240	.24	1.36	10	....	....
Georgia	Year	716	336	66	402	561.45	2,360	6.47	9.04	115	1	7
Glacier	..do	137	137	27	164	1,197.08	790	2.16	15.77	16	2	....
Hist	77 days.	12	11	3	14	1,166.67	39	.51	9.11	4	....	....
Illinois	Year	621	230	45	275	442.83	2,123	5.82	9.37	71	6	3
Indiana	199 days	301	153	39	192	637.87	1,232	6.19	11.19	14	....	1
Iowa	Year	364	115	23	138	379.1[illegible]	1,114	3.05	8.38	18	....	2
Kansas	258 days	429	260	44	304	708.62	2,025	7.85	12.85	43	2	2
Kearsarge	Year	626	293	54	347	554.31	2,177	5.96	9.52	57	2	1
Kentucky	..do	639	355	64	419	655.21	2,411	6.61	10.34	56	....	....

Average complements corrected for time, remaining from previous year, admissions and readmissions for disease and injury, sick days, etc.—Continued.

2. NORTH ATLANTIC STATION—Continued.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Louisiana	Year	803	714	177	891	1,109.59	5,507	15.09	18.67	57	2	1
Maine	...do	724	436	85	521	719.61	4,014	10.10	13.95	45	2	2
Marietta	...do	136	102	20	122	897.06	788	2.16	15.88	11	....	....
Mayflower	...do	163	71	12	83	509.20	345	.95	5.83	19	....	1
Minnesota	297 days	548	230	48	278	507.30	1,637	5.51	8.19	51	3	10
Missouri	Year	694	316	110	426	613.26	2,302	6.31	9.09	69	....	1
Monongahela	...do	180	58	19	77	427.78	737	2.04	11.33	10	....	1
Nevada	85 days	45	42	5	47	1,044.44	228	2.68	13.88	7	....	....
New Jersey	Year	694	411	68	479	690.20	2,446	6.70	9.63	87	....	1
Ohio	...do	678	319	55	374	551.62	2,864	7.85	11.58	70	....	2
Olympia	108 days	124	50	9	59	475.81	309	2.77	6.61	8	....	....
Paducah	Year	148	101	14	115	777.03	655	1.79	12.09	11	....	....
Panther	44 days	17	8	3	11	647.06	49	1.11	7.87	2	....	....
Prairie	Year	183	86	10	96	524.59	523	1.43	7.81	12	....	....
Puritan	...do	25	25	7	32	1,240.00	147	.40	16.00	6	....	....
Rhode Island	...do	722	855	118	973	1,347.65	5,805	15.90	22.03	119	5	....
Scorpion	...do	123	55	20	75	609.76	389	1.07	8.69	16	....	....
Severn	83 days	47	22	6	28	595.75	102	1.23	5.94	14	....	....
Southery	Year	437	163	31	194	443.94	1,119	3.07	7.02	79	7	....
Tacoma	...do	280	221	50	271	967.86	1,628	4.46	15.92	39	....	1
Tennessee	...do	790	656	102	758	959.49	4,459	12.22	15.46	72	6	2
Texas	259 days	60	31	11	42	700.00	373	1.44	16.94	9	1	....
Torpedo flotilla:												
Second division	Year	492	169	54	223	453.25	653	1.79	3.64	90	2	2
Third division	...do	173	102	25	127	734.10	629	1.70	9.83	35	....	....
Vermont	303 days	496	595	151	746	1,504.03	3,446	11.37	19.05	84	1	....
Virginia	Year	765	392	75	467	610.46	2,395	6.56	8.58	42	3	2
Washington	...do	785	414	119	533	678.98	3,943	10.81	13.77	39	....	1
Wasp	...do	42	18	6	24	571.42	65	.18	4.29	13	....	....
Wolverine	...do	102	88	24	112	1,098.04	789	2.16	21.18	1	....	1
Yankton	...do	88	44	4	48	545.45	510	1.40	15.91	8	....	....

3. PACIFIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Adams	Year	157	145	29	174	1,108.28	1,688	4.62	29.43	12	1	....
Albany	206 days	155	75	24	99	638.70	893	4.33	15.75	9	....	2
Albatross	Year	53	13	6	19	358.49	72	.19	3.58	5	....	1
Annapolis	281 days	122	110	28	138	1,131.14	1,050	3.73	23.61	2	....	1
Boston	161 days	115	44	12	56	486.95	478	2.97	11.38	11	1	....
Buffalo	Year	150	66	15	81	540.00	433	1.19	7.93	18	....	....
California	153 days	218	80	13	93	426.60	598	3.91	7.52	21	....	2
Charleston	Year	678	304	63	367	541.29	2,514	6.80	10.16	23	....	2
Chicago	...do	362	220	71	291	803.67	1,817	4.98	13.76	22	....	1
Milwaukee	...do	500	299	84	383	766.00	2,724	7.46	14.92	38	....	1
Nebraska	184 days	209	273	51	324	1,550.23	1,419	7.71	18.62	35	....	....
Perry	69 days	24	1	2	3	127.50	4	.05	.39	4	....	....
Princeton	184 days	60	25	8	33	550.00	222	1.21	10.17	3	....	....
St. Louis	Year	594	340	70	410	690.23	2,440	6.68	11.25	37	1	2
Supply	...do	165	91	14	105	636.36	782	2.14	12.97	13	....	1
Yorktown	...do	170	111	29	140	823.52	747	2.05	12.06	16	....	....

4. ASIATIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Baltimore	134 days	130	144	15	159	1,223.08	1,262	9.42	26.72	24	....	1
Chattanooga	Year	322	152	21	173	537.27	1,203	3.29	10.22	20	....	2
Cincinnati	285 days	252	181	35	216	859.13	1,136	3.99	12.35	21	....	....
Cleveland	Year	262	138	22	160	610.69	1,261	3.45	13.17	38	....	....
Colorado	...do	795	366	67	433	544.65	2,472	6.77	8.52	40	....	1
Concord	...do	176	188	15	203	1,153.41	1,180	3.23	18.35	19	....	1
Denver	...do	261	148	13	161	616.86	924	2.53	9.69	34	1	....
El Cano	305 days	81	70	9	79	975.31	738	2.42	24.95	16	....	....
Galveston	Year	339	199	23	222	654.87	1,886	5.17	15.25	24	....	....
Helena	...do	218	180	28	208	954.13	1,927	5.28	24.22	14	....	....
Maryland	...do	824	481	89	570	690.53	5,289	14.49	17.58	41	1	3
Mohican	...do	213	100	26	126	591.55	750	1.05	4.93	23	....	1
Pennsylvania	...do	841	163	38	201	239.00	1,904	5.22	6.21	37	....	2
Piscataqua	142 days	14	9	7	16	1,142.86	79	.56	15.56	4	....	....
Rainbow	Year	347	237	28	265	763.69	1,648	4.52	13.03	28	....	1
Raleigh	285 days	228	134	38	172	754.34	1,178	4.13	14.14	25	1	1
Torpedo flotilla, first division.	Year	192	94	22	116	604.17	818	2.24	11.67	38	....	....

Average complements corrected for time, remaining from previous year, admissions and readmissions for disease and injury, sick days, etc.—Continued.

4. ASIATIC STATION—Continued.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Villalobos	Year	58	40	7	47	810.34	410	1.12	19.31	2	1	....
West Virginia	...do	900	576	85	661	734.44	4,363	11.95	13.28	39	....	3
Wilmington	...do	212	205	29	234	1,103.77	1,312	3.59	16.93	12	....	5
Wompatuck	...do	33	5	2	7	212.13	36	.10	3.03	2	....	....

5. RECEIVING SHIPS.

Franklin	Year	1,999	830	103	933	466.73	3,719	10.19	5.09	416	73	5
Hancock	...do	865	396	53	449	519.08	1,173	3.21	8.79	330	3	....
Independence	...do	671	180	45	225	335.32	355	.97	2.66	144	41	4
Lancaster	...do	461	177	31	208	451.19	733	2.01	5.51	90	10	2
Philadelphia	...do	228	54	8	62	271.93	466	1.28	3.51	20	1	....
Wabash	...do	337	126	29	155	459.94	558	1.53	4.19	79	2	2

6. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Location.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Number of sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Number transferred to hospital.	Number invalided from service.	Number of deaths.
			Disease.	Injury.	Total.							
Navy-yards:												
Boston	Year	475	181	26	207	435.78	913	2.50	5.26	99	19	0
Cavite	...do	624	713	35	748	1,198.71	3,181	8.71	13.96	186	2	2
League Island	...do	297	234	52	286	962.96	1,169	3.20	10.77	87	33	2
Mare Island	...do	428	254	51	305	712.61	1,857	5.08	11.86	130	15	2
New York	...do	454	239	53	292	643.17	1,411	3.86	8.50	80	2	1
Norfolk	...do	550	626	124	750	1,363.63	4,161	11.40	20.72	172	41	1
Pensacola	...do	142	68	10	78	549.29	226	.62	4.36	30	3	1
Portsmouth	...do	134	79	15	94	701.49	534	1.46	10.89	30	3	2
Puget Sound	...do	183	78	20	98	535.51	143	.39	2.13	72	0	1
Washington	...do	319	243	33	276	865.20	890	2.43	7.61	126	15	0
Marine barracks and camps:												
Cuba	...do	925	599	159	758	819.45	5,622	15.40	16.64	149	1	1
Culebra	...do	48	92	8	100	2,083.33	572	1.56	32.00	10	0	0
Harrington (camp).	96 days.	11	13	1	14	1,270.90	68	.71	16.91	2	0	0
Panama	Year	182	469	38	507	2,785.71	2,732	7.48	41.09	11	0	2
Polloc	...do	36	30	6	36	1,000.00	295	.81	22.50	2	0	1
Washington	...do	352	616	69	685	1,946.02	2,404	6.59	18.72	209	0	0
Naval stations:												
Academy	...do	1,321	1,174	185	1,359	1,021.19	5,908	16.18	12.24	189	13	4
Charleston	...do	85	32	15	47	552.94	832	2.38	28.00	1	5	0
Dry Tortugas	...do	3	3	0	3	1,000.00	6	.01	3.33	0	0	0
Guam	...do	129	109	28	137	1,062.01	1,851	5.07	39.30	13	3	0
Hawaii	...do	131	80	8	88	671.76	502	1.37	10.45	3	0	0
Indian Head	...do	7	11	1	12	1,714.27	63	.17	24.28	2	0	0
Iona Island	...do	15	6	2	8	533.33	51	.14	9.33	0	0	0
Key West	...do	97	60	13	73	752.57	1,044	2.86	29.48	24	1	1
Medical School Hospital Dispensary.	....	....	93	6	99	....	743	2.03	....	12	1	0
Midway Islands	Year	22	8	1	9	409.09	80	.21	9.54	3	0	0
New Orleans	...do	56	26	9	35	625.00	485	1.32	23.57	4	1	0
Newport	...do	2,039	1,277	160	1,437	704.26	4,872	13.34	6.54	957	101	0
Olongapo	...do	728	838	38	876	1,203.29	5,280	14.46	19.86	88	0	0
Port Royal	...do	30	14	1	15	500.00	57	.15	5.00	5	0	0
San Francisco	...do	564	685	103	788	1,397.16	8,248	22.59	40.05	36	43	0
Washington Dispensary (Mills Building).	....	....	16	2	18	....	114	.31	....	3	0	0
Special duty:												
Peking	Year	127	98	11	109	858.26	1,433	3.92	30.85	2	0	2
Philadelphia	...do	....	14	3	17	....	583	1.59	....	3	0	0

General aggregate 1907.

7. FORCE AFLOAT.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases	6	267	11	189	92	....	....	....	1	....	2	1,400
CLASS II.												
General infectious diseases. (Non-venereal)	50	3,652	253	2,755	1,079	8	1	....	....	13	99	21,938
CLASS III.												
Constitutional disorders of nutrition	1	64	2	30	35	....	....	....	....	....	2	443
CLASS IV.												
Diseases of the nervous system	14	1,018	81	796	254	34	2	7	....	4	16	5,849
CLASS V.												
Diseases of the visual apparatus	5	268	25	194	74	21	....	....	1	....	8	2,126
CLASS VI.												
Diseases of the auditory apparatus	1	187	15	140	55	4	....	....	....	....	4	928
CLASS VII.												
Diseases of the olfactory apparatus	3	64	1	56	12	....	....	....	....	....	....	166
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1.—Diseases of the digestive apparatus	43	3,185	111	2,874	422	5	2	....	....	1	35	18,403
Subsidiary class 2.—Diseases of the circulatory apparatus	2	291	30	182	105	19	....	....	....	8	9	2,723
Subsidiary class 3—Diseases of the respiratory apparatus	16	1,000	51	924	122	3	....	....	....	....	18	5,900
CLASS IX.												
Diseases of the motory apparatus	6	470	38	413	92	3	....	....	....	....	6	3,408
CLASS X.												
Diseases of the cutaneous apparatus	11	1,328	59	1,269	100	....	....	....	....	1	28	10,314
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	93	4,819	405	4,432	772	26	1	....	1	4	81	35,193
CLASS XII.												
Cysts and new growths	2	54	6	36	24	1	....	....	....	....	1	485
CLASS XIII.												
Injuries	65	3,010	127	2,543	451	62	....	....	2	67	77	24,754
CLASS XIV.												
Extraneous bodies	....	13	......	12	1	....	....	....	....	....	....	61
CLASS XV.												
Poisons	9	300	17	280	34	4	....	....	....	4	4	1,669
CLASS XVI.												
Feigned diseases	1	1	......	2	....	....	....	....	....	....	....	22
Total	328	19,991	1,232	17,127	3,724	190	6	7	5	102	390	130,877

Detailed statement, 1907.

8. FORCE AFLOAT.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
Class I:												
Parasites and parasitic diseases—												
Filaria sanguinis		1		1								5
Oxyuris vermicularis		1		1								1
Pediculus		3		3								21
Scabies	5	226	7	149	87				1		1	1,080
Tænia		12	2	14								53
Tinea trichophytina	1	13	2	15	1							148
Other diseases of this class		11		6	4						1	101
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		30	2	14	18							171
Catarrhus epidemicus	20	1,203	25	1,196	34						18	4,790
Cholera		1	1	1	1							18
Denguis		57	1	55	3							308
Diphtheria		12		2	9						1	38
Dysenteria acuta	1	13	1	9	5					1		115
Dysenteria chronica		8	3	4	7							41
Erysipelas	1	15		10	6							214
Febris cerebro-spinalis		12			11					1		5
Febris enterica	1	150	2	7	134		1			2	9	1,056
Febris intermittens	4	404	104	467	45							2,067
Febris pneumonica		128	2	49	70	1				4	6	1,426
Febris recurrens		1		1								2
Febris remittens	2	133	44	167	11						1	1,205
Morbilli		444	2	88	347						11	1,142
Paralysis ascendens acuta		5		5								64
Parotitis epidemica	5	351	1	220	132						5	3,007
Pyæmia		2			1					1		5
Rheumatismus articularis acutus	7	278	35	222	76						22	3,069
Rheumatismus articularis chronicus	1	70	11	43	35	1					3	728
Rubella		94	2	78	9						9	586
Scarlatina	3	29		21	11							346
Septicæmia		4			2					1	1	34
Tuberculosis miliaris acuta		3			2					1		57
Tuberculosis pneumonica acuta		24	1	2	21						2	122
Tuberculosis pnoumonica chronica	3	79	10	10	73	6					3	616
Vaccina		68		60							8	325
Varicella	1	14		6	9							82
Variola		8	5	8	3					2		219
Other diseases of this class	1	12	1	10	4							80
Class III:												
Constitutional disorders of nutrition—												
Anæmia	1	43	2	18	26						2	294
Debilitas senilis		5		2	3							20
Diabetes insipidus		4		4								46
Diabetes mellitus		3		1	2							29
Leucocythæmia		2			2							12
Lithæmia		2		1	1							6
Other diseases of this class		5		4	1							36
Class IV:												
Diseases of the nervous system—												
Apoplexia	2	1	1		2	1				1		49
Aphasia		1		1								2
Atrophia muscularis progressiva		2			2							4
Cephalalgia		34	1	26	8	1						77
Chorea		3		1	2							26
Dementia		33	2	2	26	3		3			1	287
Epilepsia	3	65	26	29	47	17					1	403
Febris continua simplex	4	268	4	252	20						4	1,626
Febris ephemera	3	197	2	201							1	658
Febris thermica		9		8	1							85

Detailed statement, 1907—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class IV—Continued.												
Diseases of the nervous system—Continued.												
Hemiplegia		5			5							1
Insomnia		4		2	2							10
Mania		8	1		6			3				75
Melancholia		39	8	9	34	2		1			1	408
Meningitis		4	1	1	1					2	1	122
Monoplegia		2		1	1							2
Nausea marina		33	7	32	5	2					1	113
Neuralgia	1	70		69	2							268
Neurasthenia		64	7	27	38	2	2				2	371
Neuritis		26	6	16	15	1						223
Neuritis multiplex		2			2							51
Neurosis hysteroidea		8	4	6	5	1						113
Paralysis agitans			1		1							8
Paralysis glosso-labio-laryngealis		1			1							2
Paranoia		10	1		10						1	60
Prostratio thermica		68	4	65	3	2					2	267
Sciatica		22	1	16	7							351
Sclerosis spinalis posterior		2			2							12
Syncope		11		9	1					1		24
Torticollis spasmodica	1	2		3								9
Vertigo		15	1	11	3	1					1	60
Other diseases of this class		9	3	9	2	1						73
Class V:												
Diseases of the visual apparatus—												
Achromatopsia		6				6						48
Amaurosis	1	1	1		2	1						3
Amblyopia		15	1	3	9	4						42
Asthenopia		4	1	2	3							16
Astigmatismus		10		7	2	1						38
Blepharitis		4		2	1						1	16
Cataracta		1				1						11
Chalazion		1		1								1
Choroiditis		1			1							14
Conjunctivitis	1	118	11	109	17	1					3	808
Corneæ ulcus		7		6							1	65
Dacryocystitis		1			1							6
Glaucoma		2			2							22
Hordeolus		6		6								13
Hypermetropia		1	1			2						12
Iritis	2	23	4	22	6	1						330
Keratitis	1	14	3	14	3						1	207
Leucoma		1			1							0
Myopia		15		4	7	2			1		1	159
Neuritis optica		3			3							74
Pterygium		16	1	9	8							53
Retinitis		4	1		3	2						54
Sclerotitis		2		1	1							4
Synechia		1		1								20
Trachoma		4		3							1	27
Other diseases of this class		7	1	4	4							29
Class VI:												
Diseases of the auditory apparatus—												
Myringitis		2		2								2
Otalgia		1		1								4
Otitis externa		29	4	31	2							153
Otitis media	1	134	11	97	43	3					3	553
Surditas		18		6	10	1					1	213
Other diseases of this class		3		3								3
Class VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		2		1	1							3
Rhinitis acuta	3	50		53								140
Rhinitis chronica		10	1	1	10							18
Other diseases of this class		2		1	1							5

Detailed statement, 1907—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1.—Diseases of the digestive apparatus—												
Adenitis salivosa		3		3								8
Ani prolapsio		1			1							0
Ani rhagades		2			2							4
Appendicitis	2	154	17	65	103	1	1				3	763
Catarrhus gastricus acutus	1	111	3	95	19						1	446
Catarrhus gastricus chronicus		39	6	21	21	3						243
Catarrhus intestinalis acutus	1	164	2	153	14							643
Catarrhus intestinalis chronicus		10	2	3	9							84
Cholelithiasis		5	1	2	4							11
Colica		140	5	136	8						1	409
Constipatio		65	1	64	1						1	193
Dentis caries		8		7	1							15
Diarrhœa simplex		254	8	259	2						1	796
Dyspepsia nervosa		5	1	5	1							27
Fistula in ano		29		7	21		1					131
Gastralgia		15		12	3							51
Glossitis		1			1							4
Hæmatemesis		2		2								40
Hæmorrhois	5	140	9	87	65						2	679
Hepatis congestio		19		18	1							73
Hepatitis acuta		7		6							1	37
Hepatitis chronica		3			3							19
Hypertrophia tonsillaris		6		3	3							6
Icterus		95	4	90	9							1,009
Obstructio intestinalis		1			1							2
Peritonitis		7	1	3	4					1		82
Pharyngitis	1	48	1	45	4						1	198
Stomatitis		4		3	1							24
Tonsilitis	33	1.824	50	1,774	108	1					24	7,421
Typhlitis		4		3	1							10
Ulcus gastricum		2			2							15
Other diseases of this class		17		8	9							50
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		4			2					2		53
Angina pectoris		5		1	4							14
Arteriosclerosis		1		1								2
Cordis dilatatio		6		1	4					1		11
Cordis hypertrophia		7	1	2	3	3						48
Cordis palpitatio	1	45	12	27	28	3						461
Cordis valvularum morbus		43	4	10	21	12				4		268
Embolismus		1								1		1
Endocarditis		3		2	1							39
Myocarditis		1		1								6
Phlebitis		7	1	8								85
Tachycardia		1			1							0
Varix		26	3	9	19	1						85
B—Lymphatics—												
Bronchocele		4			4							2
Lymphadenitis	1	93	8	84	15						3	1,178
Lymphangitis		37	1	31	1						6	323
Splenypertrophia		1		1								14
Other diseases of this class		6		4	2							133
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma	2	24	18	25	17	2						178
Bronchopneumonitis		20		12	6						2	139
Bronchitis acuta	6	420	12	418	17						3	2,259
Bronchitis chronica	1	61	4	45	20						1	492
Catarrhus bronchialis	5	316	8	308	14						7	1,440
Hæmoptysis		11	1	3	9							128
Laryngitis acuta		46	1	45	1						1	178
Laryngitis chronica		5		2	3							89
Œdema pulmonalis		1		1								1
Pleuritis acuta	2	78	4	56	24						4	783
Pleuritis chronica		7	2	3	6							134
Pleuritis purulenta		8	1	3	5	1						64
Other diseases of this class		3		3								15

Detailed statement, 1907—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	On leave.	To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		3		1	2							1
Arthritis	2	39	3	27	15						2	472
Arthritis deformans		1			1							10
Bursitis		13		10	2						1	89
Caries		3		2	1							33
Contractura		3	2	3	2							25
Myalgia acuta	2	261	9	257	14						1	1,349
Myalgia chronica		37	3	19	20	1						214
Necrosis		9		3	6							90
Ostitis		3	1	1	3							94
Periostitis		18	3	14	6						1	235
Synovitis	2	58	16	61	15							536
Thecitis		10		10								64
Other diseases of this class		12	1	5	5	2					1	206
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	3	595	17	561	37						17	4,635
Acne	1	4		4	1							15
Carbunculus	1	20	2	18	3						2	140
Cellulitis		148	3	132	15					1	3	1,230
Clavus		6	2	8								91
Cutis fissuræ		6		6								37
Ecthyma		3		3								19
Eczema		52	5	44	13							549
Erythema		16	2	16	2							64
Furunculus	2	230	10	240	2							1,292
Herpes simplex		3		3								12
Herpes zoster		20		19							1	164
Impetigo		4		3	1							86
Lichen		2		2								6
Onychia		10		9							1	113
Paronychia	1	13		14								109
Pemphigus		4		4								21
Prurigo		1		1								8
Psoriasis		5	3	4	3						1	61
Ulcus	3	100	11	99	12						3	1.107
Unguis involutus		49	2	44	7							410
Urticaria		18	2	20								66
Verruca		8		6	2							35
Other diseases of this class		11		9	2							55
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	27	616	46	550	124						15	9,212
Arthritis gonorrhoica	3	119	15	67	66	1					3	1,284
Balanitis		22	1	22	1							168
Calculus		2	1	1	2							35
Chancroid	14	465	21	459	35						6	2,862
Cystitis	1	50	4	40	15							403
Enuresis		16	3	7	9	3						119
Epididymitis	13	424	46	426	39	1					17	5,181
Fistula urinalis		4			4							6
Gonorrhea	8	1,755	78	1,772	56	1			1		11	4,817
Hæmaturia		12		11	1							31
Hydrocele		19	2	12	9							115
Nephritis acuta	1	15		7	8						1	130
Nephritis chronica	1	19	2	2	15					3	2	137
Nephrolithiasis		5	1	4			1			1		90
Ophthalmia gonorrhoica		13		5	8							171
Orchitis	8	281	23	261	41	1					9	2,859
Paraphimosis		23		21	2							227
Phimosis	4	145	5	125	25						4	1,271
Prostatitis	1	12	1	12	2							159
Pyelitis		7	1	3	5							81
Syphilis consecutiva	10	577	142	485	218	16					10	4,481
Syphilis primitiva	1	71	3	64	10						1	623
Urethræ strictura		39	3	24	18							169

Detailed statement, 1907—Continued.

8. FORCE AFLOAT—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XI—Continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Continued.												
Urethritis simplex		1									1	11
Urina suppressa		2		2								8
Urinæ retentio		9		3	6							12
Varicocele	1	66	2	22	45	2						231
Verruca acuminata		17	2	16	2						1	176
Other diseases of this class		13	3	9	6	1						138
CLASS XII:												
Cysts and new growths—												
Adenoma		4		2	2							18
Carcinoma		1			1							0
Cystis	2	22	3	23	4							159
Epithelioma		2	1		3							123
Fibroma		4		1	3							44
Lipoma		5		3	2							19
Osteoma		3	1	1	2	1						2
Sarcoma		1			1							11
Other diseases of this class		12	1	6	6						1	109
CLASS XIII:												
Injuries—												
Abrasio	1	52		50	1						2	286
Ambustio ex calore	3	182	5	152	25					8	5	1,273
Ambustio ex frigore		3		3								4
Asphyxia		2								2		2
Asphyxia ex submersione		38			2					36		36
Concussio		21		15	6							129
Contusio	12	548	5	542	13						10	3,707
Deformitas	1	132	14	74	43	29					1	798
Fames		16	1	7	10							144
Fractura	10	358	12	245	106	2			1	8	18	5,149
Fulminis ictus		1		1								3
Hernia	3	149	36	35	135	16					2	884
Ictus electricus		1		1								1
Luxatio	3	55	8	52	9	2					3	761
Membranæ tympani ruptio		19		19								193
Membri clades	1	15		6	6	2					2	156
Musculi ruptio		3		1	1					1		41
Visceris ruptio		2		1						1		39
Sole excoctus		35		34	1							174
Stremma	10	513	21	504	24	3					13	3,445
Virium defectio		4	2	3		3						80
Vulnus contusum	4	186	1	181	6						4	1,447
Vulnus incisum	5	150	4	141	11					2	5	1,163
Vulnus laceratum	9	404	9	380	28	1				3	10	3,923
Vulnus punctum		69	2	67	4							493
Vulnus sclopeticum	1	38	3	17	15	1			1	6	2	219
Other diseases of this class	2	14	4	12	5	3						204
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		13		12	1							61
CLASS XV:												
Poisons—												
Alcoholismus	3	158	8	141	21					4	3	437
Dermatitis venenata	1	26	2	27	2							161
Venenum irritans		9		8	1							28
Venenum neuroticum		16	1	12	2	3						165
Vulnus venenatum	4	78	4	82	3						1	813
Other diseases of this class	1	13	2	10	5	1						65
CLASS XVI:												
Feigned diseases	1	1		2								22
Total	328	19,991	1,232	1,7127	3,724	190	6	7	5	102	390	130,877

General aggregate, 1907.

9. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases	4	213	9	66	160							586
CLASS II.												
General infectious diseases (non-venereal)	54	3,007	545	2,734	772	10	3		3	6	78	17,553
CLASS III.												
Constitutional disorders of nutrition		33	3	17	15	2					2	331
CLASS IV.												
Diseases of the nervous system	8	371	17	259	85	39	4	3	1	1	4	2,758
CLASS V.												
Diseases of the visual apparatus	7	296	17	166	95	41	4				14	2,000
CLASS VI.												
Diseases of the auditory apparatus		117	13	68	38	19	1				4	660
CLASS VII.												
Diseases of the olfactory apparatus		32		25	6		1					76
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus	8	1,511	75	1,136	430	5	2			1	20	5,860
Subsidiary class 2—Diseases of the circulatory apparatus	1	177	19	85	55	43			1	1	12	1,810
Subsidiary class 3—Diseases of the respiratory apparatus	10	478	13	342	147	5				2	5	2,448
CLASS IX.												
Diseases of the motory apparatus	1	207	16	145	64	11					4	1,283
CLASS X.												
Diseases of the cutaneous apparatus	21	458	13	368	107	6					11	3,232
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	34	1,349	100	942	488	34	1			1	17	9,507
CLASS XII.												
Cysts and new growths	1	17	2	7	13							91
CLASS XIII.												
Injuries	19	1,030	64	767	224	84	1		2	10	25	9,095
CLASS XIV.												
Extraneous bodies		7	1	5	3							6
CLASS XV.												
Poisons	1	188	9	153	38	3				2	2	1,036
Total	169	9,491	916	7,285	2,740	302	17	3	7	24	198	58,332

Detailed statement, 1907.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		5		5								11
Pediculus		4		4								7
Pulex penetrans	1			1								37
Scabies	1	167	4	21	151							258
Tænia		5	4	9								31
Tinea favosa		2			2							0
Tinea trichophytina	2	27		23	6							224
Other diseases of this class		3	1	3	1							18
CLASS II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		6		3	3							45
Catarrhus epidemicus	22	516	7	473	42						30	2,023
Cholera		1								1		1
Cholera morbus		5		3	2							12
Denguis	2	486	1	463	19		1		3		3	2,503
Diphtheria		17			17							0
Dysenteria acuta		43	3	26	19						1	329
Dysenteria chronica		9	1	2	8							12
Erysipelas		7	1	3	5							26
Febris cerebro-spinalis		8	1	1	8							32
Febris enterica	3	46	4	9	41					1	2	446
Febris intermittens	17	588	400	908	92						5	3,818
Febris pneumonica		41	3	6	35					1	2	184
Febris recurrens		1		1								2
Febris remittens	2	271	103	345	31							2,227
Morbilli		242	1	39	203						1	575
Parotitis epidemica		289	1	148	114						28	2,591
Pyæmia		2		1						1		40
Rheumatismus articularis acutus	2	64	6	33	34	1	1			1	2	571
Rheumatismus articularis chronicus		30	6	20	12	4						310
Rubella		30		6	24							44
Scarlatina		5		1	4							28
Septicæmia		1			1							0
Tuberculosis pneumonica acuta		7	2	2	7							54
Tuberculosis pneumonica chronica	3	26	2	3	23	4	1					369
Tuberculosis of other parts		6	2	3	4	1						98
Vaccina	3	241	1	229	12						4	1,104
Varicella		5		3	2							12
Variola		10		2	7					1		86
Other diseases of this class		4		1	3							11
CLASS III:												
Constitutional disorders of nutrition—												
Anæmia		14		6	6						2	163
Debilitas senilis		4		3	1							11
Diabetes mellitus		4	2	3	3							36
Hæmophilia		2	1		3							1
Lithæmia		1		1								5
Other diseases of this class		8		4	2	2						115
CLASS IV:												
Diseases of the nervous system—												
Atrophia muscularis progressiva		1			1							0
Cephalalgia		41	1	40		1					1	142
Chorea		3			2	1						31
Dementia	1	14		1	6	7			1			156
Epilepsia	2	31	5	12	12	14						390
Febris continua simplex	1	54	1	51	4						1	272
Febris ephemera		47		45	2							128
Febris thermica		4		4								16
Hemiplegia		3		1	2							13
Insomnia		2	1	2	1							21
Irritatio spinalis		2	1	2	1							17
Mania		6			6							4
Melancholia	2	19		2	13	2		3			1	508

Detailed statement, 1907—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Meningitis		2			1					1		3
Monoplegia		2		1	1							7
Myelitis		1			1							3
Neuralgia	1	29	2	31	1							106
Neurasthenia	1	44	1	23	14	4	4				1	398
Neuritis		13	1	8	4	2						131
Neurosis hysteroidea		7	1	3	3	2						89
Paranoia		3			2	1						19
Prostratio thermica		5		5								20
Sciatica		5	1	4	1	1						118
Sclerosis spinalis posterior		1		1								15
Syncope		5		4	1							10
Vertigo		18	2	18	2							61
Other diseases of this class		9		1	4	4						80
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		22		8	5	8					1	250
Amaurosis		2			1	1						39
Amblyopia		25	1		24	1					1	75
Asthenopia		22		10	12							68
Astigmatismus		16		2	10	3					1	62
Blepharitis		3		3								12
Chalazion		2		2								3
Choroiditis		1			1							0
Conjunctivitis	1	84	5	69	16	2					3	355
Corneæ ulcus		3	1	3	1							22
Glaucoma			1								1	5
Hordeolus		4		4								10
Hypermetropia		11		8		3						55
Iritis		14		8	5						1	91
Keratitis		2		1	1							11
Myopia	5	60	8	40	2	22	3				6	786
Obstructio lacrimalis		1				1						21
Panophthalmitis	1				1							4
Pterygium		12	1	4	9							47
Retinitis		5		2	2		1					27
Trachoma		2		1	1							2
Other disases of this class		5		1	4							55
CLASS VI:												
Diseases of the auditory apparatus—												
Otalgia		4		4								13
Otitis externa		18	1	14	5							81
Otitis media		68	10	46	23	5					4	289
Surditas		27	2	4	10	14	1					277
CLASS VII:												
Diseases of the olfactory apparatus—												
Rhinitis acuta		26		21	5							59
Rhinitis chronica		3		1	1		1					7
Other diseases of this class		3		3								10
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Ani prolapsio		1				1						24
Ani rhagades		3	1		2						2	83
Appendicitis	2	60	9	27	42	1	1					462
Catarrhus gastricus acutus		78	1	68	11							349
Catarrhus gastricus chronicus		13	1	6	5	1	1				1	93
Catarrhus intestinalis acutus	1	172	11	175	9							679
Catarrhus intestinalis chronicus		7	4	9	2							86
Cholelithiasis		3	2	2	3							15
Colica		61	2	56	7							216
Constipatio	1	23	1	21	4							59
Dentis caries		6	1	4	2						1	49
Diarrhea simplex	1	195	5	196	5							602
Dyspepsia nervosa		11	3	12	2							97
Fistula in ano		13	1	3	10	1						65

Detailed statement, 1907—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS VIII—DISEASES OF THE NUTRITIVE APPARATUS—Cont'd.												
Subsidiary class 1.—Diseases of the digestive apparatus—Con.												
Gastralgia		2		1	1							5
Hæmorrhois		75	6	31	47						3	263
Hepatis congestio		9	1	7	3							131
Hepatitis acuta	1	3	1	4	1							71
Hepatitis chronica		2	1	1	1					1		12
Hepatitis suppurativa		3	1	1	3							54
Hypertrophia tonsillaris		8		3	5							13
Icterus		21		13	8							113
Obstructio intestinalis		4	1	4	1							51
Odontalgia	1	4		5								9
Odontolithus		1		1								2
Parulis		3		3								8
Periodontitis		4	1	4	1							18
Peritonitis		3		2	1							12
Pharyngitis		73		65	7						1	232
Stomatitis		32	1	24	9							109
Tonsilitis	1	602	18	379	231						11	1,817
Ulcus gastricum		3	1	2	2							13
Other diseases of this class		13	1	7	5	1					1	48
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		2			2							1
Angina pectoris		3			2					1		3
Arteriosclerosis		1		1								5
Cordis dilatatio		1				1						16
Cordis hypertrophia		10	1	7	3	1						91
Cordis palpitatio		35	4	17	9	6					7	394
Cordis valvularum morbus		44	4	10	11	25					2	546
Endocarditis	1	3		2	2							25
Myocarditis		1		1								3
Phlebitis		4		1	2	1						83
Varix		23	3	8	9	6			1		2	255
B—Lymphatics—												
Bronchocele		7		2	2	3						108
Lymphadenitis		27	4	22	8						1	202
Lymphangitis		14	1	11	4							68
Splenypertrophia			2	1	1							3
Other diseases of this class		2		2								7
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma		17	4	9	9	2					1	296
Bronchopneumonitis		7			6					1		10
Bronchitis acuta	7	227	4	167	70						1	931
Bronchitis chronica		27	2	9	17	2					1	163
Catarrhus bronchialis	2	122	1	111	14							484
Hæmoptysis		3			3							0
Laryngitis acuta	1	38	1	34	6							196
Laryngitis chronica		3		1	2							1
Œdema pulmonalis			1							1		1
Pleuritis acuta		23		9	13						1	140
Pleuritis chronica		5			3	1					1	73
Pleuritis purulenta		5		2	3							146
Other diseases of this class		1			1							7
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		9		3	2	4						72
Arthritis		16	3	11	6	2						85
Arthritis deformans		1									1	2
Bursitis		9	1	5	4	1						62
Caries		2		2								2
Contractura		8		1	3	1					3	59
Myalgia acuta	1	88	2	79	12							412
Myalgia chronica		14		5	9							37
Necrosis		2			2							1
Ostitis		1			1							0
Periostitis		7		2	4	1						115

Detailed statement, 1907—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS IX—Continued.												
Diseases of the motory apparatus—Continued.												
Synovitis		36	8	28	15	1						357
Thecitis		4		2	2							18
Other diseases of this class		10	2	7	4	1						61
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	6	150	4	108	46	1					5	904
Acne		2		1							1	11
Carbunculus		6		4	2							17
Cellulitis	3	33		26	10							191
Clavus	1	10		11								64
Cutis fissuræ		2		1		1						32
Ecthyma		1			1							0
Eczema	2	35	1	24	13						1	209
Erythema		11		6	5							32
Furunculus		78	4	79	3							405
Herpes simplex		2		2								20
Herpes zoster		11		11								84
Impetigo		2			2							1
Onychia		1		1								4
Paronychia		7		5	1						1	29
Pemphigus		3		3								20
Pernio		3		2		1						36
Pityriasis		2		1		1						9
Psoriasis		5	1	5	1							35
Ulcus	6	47	2	42	11	1					1	781
Unguis involutus	2	33	1	31	3						2	328
Urticaria		7		4	3							11
Verruca		4			4							0
Other diseases of this class	1	3		1	2	1						9
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	3	118	10	61	67						3	1,284
Arthritis gonorrhoica	1	37	4	17	20	5						657
Balanitis		8		8								37
Chancroid	3	80	6	68	21							534
Cystitis	3	20	1	15	9							151
Enuresis	1	10		1	6	4						91
Epididymitis	3	74	5	59	20	1					2	806
Gonorrhœa	7	476	27	446	60						4	2,518
Hæmaturia		11		6	5							60
Hydrocele	2	15	1	5	6	7						119
Nephritis acuta		10	1	2	9							44
Nephritis chronica		10		6	1	3						102
Nephrolithiasis	1	1		2								7
Ophthalmia gonorrhoica		3		3								35
Orchitis	2	85	9	59	36						1	590
Paraphimosis	1	8		6	3							86
Phimosis		69		48	19		1				1	555
Prostatitis		8	2	5	5							97
Spermatorrhœa		1		1								2
Syphilis consecutiva	7	134	26	73	85	6					3	1,047
Syphilis primitiva		23	1	17	6	1						113
Uremia		1								1		1
Urethræ strictura		11		4	7							64
Urethritis simplex		1		1								2
Urinæ retentio		5		2	3							31
Varicocele		114	5	14	95	7					3	340
Verruca acuminata		5	1	5	1							15
Other diseases of this class		11	1	8	4							119
CLASS XII:												
Cysts and new growths—												
Angeloma	1			1								6
Chondroma		2			2							31
Cystis		7	1	3	5							24
Fibroma		1			1							0

Detailed statement, 1907—Continued.

10. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To hospital for insane.				
CLASS XII—Continued.												
Cysts and new growths—Cont'd.												
Lipoma		2			2							1
Neuroma		1		1								7
Osteoma		2			2							2
Other diseases of this class		2	1	2	1							20
CLASS XIII:												
Injuries—												
Abrasio	2	36		37							1	169
Ambustio ex calore	1	28		26	3							346
Ambustio ex frigore		1		1								4
Asphyxia ex submersione		4		1						3		7
Concussio		13		7	5					1		146
Contusio	1	135	2	129	9							733
Deformitas	1	103	13	37	27	43			2		8	1,306
Fractura	4	78	6	43	40	3				1	1	1,202
Hernia		124	17	28	75	36					2	1,083
Ictus electricus		1		1								1
Luxatio	1	24	1	20	6							242
Membranæ tympani ruptio		4		3	1							3
Musculi ruptio		3		2	1							21
Sole excoctus		1	1	2								7
Stremma	4	240	18	233	20		1				8	1,729
Vulnus contusum	1	39	2	34	7						1	341
Vulnus incisum		44		38	3					2	1	433
Vulnus laceratum	1	95	1	87	8						2	662
Vulnus punctum		28	1	21	8							268
Vulnus sclopeticum	2	28	2	16	11	1				3	1	363
Other diseases of this class	1	1		1		1						29
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		7	1	5	3							6
CLASS XV:												
Poisons—												
Alcoholismus	1	87	2	66	19	1				2	2	331
Dermatitis venenata		51	3	52	2							322
Venenum irritans		7		4	3							26
Venenum neuroticum		10	1	3	7	1						46
Vulnus venenatum		30	2	25	7							292
Other diseases of this class		3	1	3		1						19
Total	169	9,491	916	7,285	2,740	302	17	3	7	24	198	58,332

General aggregate, 1907.

11. NAVAL HOSPITALS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases....	38	7	260	287	1	0	0	0	8	0	9	5,708
CLASS II.												
General infectious diseases (nonvenereal)	170	357	1,989	1,865	194	131	17	0	19	59	231	81,628
CLASS III.												
Constitutional disorders of nutrition..............................	8	9	55	40	9	9	3	0	1	2	8	2,864
CLASS IV.												
Diseases of the nervous system....	54	72	380	198	54	125	15	64	6	4	40	15,603
CLASS V.												
Diseases of the visual apparatus...	15	24	180	135	11	51	1	0	2	0	19	7,87
CLASS VI.												
Diseases of the auditory apparatus.	7	24	100	58	8	45	1	0	2	0	17	4,835
CLASS VII.												
Diseases of the olfactory apparatus.	1	7	19	20	1	5	1	0	0	0	0	1,015
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1—Diseases of the digestive apparatus.......	89	81	879	857	48	37	14	0	10	11	72	28,470
Subsidiary class 2—Diseases of the circulatory apparatus....	27	38	176	119	25	63	1	0	5	10	18	9,273
Subsidiary class 3—Diseases of the respiratory apparatus....	28	33	281	259	19	20	0	0	3	8	33	12,145
CLASS IX.												
Diseases of the motory apparatus..	28	45	178	155	22	44	2	0	1	0	27	11,210
CLASS X.												
Diseases of the cutaneous apparatus..................................	23	24	202	205	11	5	2	0	1	0	25	9,577
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	238	198	1,375	1,262	136	159	3	0	36	8	207	77,140
CLASS XII.												
Cysts and new growths............	3	4	38	32	1	5	0	0	0	3	4	1,912
CLASS XIII.												
Injuries..........................	107	55	706	558	68	116	8	0	9	12	97	37,701
CLASS XIV.												
Extraneous bodies.................	1	0	6	5	1	1	0	0	0	0	0	118
CLASS XV.												
Poisons...........................	9	19	81	80	4	16	0	0	0	1	8	1,884
Total........................	846	997	6,905	6,135	613	832	68	64	103	118	815	309,021

Detailed statement, 1907.

12. NAVAL HOSPITALS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class I:												
Parasites and parasitic diseases—												
Pityriasis			1	1								18
Scabies	34	5	244	266	1				8		8	5,064
Tænia	2	1	1	3							1	88
Tinea favosa			2	2								150
Tinea trichophytina	1	1	7	9								145
Other diseases of this class	1		5	6								243
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis	3	1	9	9	3		1					707
Catarrhus epidemicus		15	79	78		1	1				14	1,237
Cholera morbus			2	2								14
Denguis	3	7	20	30								275
Diphtheria		27	26	17	2					2	32	506
Dysenteria acuta	8	13	30	43	6	1			1			1,797
Dysenteria chronica	4	9	23	25	7	2					2	1,901
Erysipelas	2		13	12	1						2	397
Febris cerebro-spinalis		10	22	12	2	2			1	13	2	1,319
Febris enterica	16	53	176	196	5	2	8		4	13	17	12,614
Febris intermittens	16	17	129	137	11	1			3		10	4,206
Febris pneumonica	14	23	108	107	7	1	3		1	14	12	4,380
Febris remittens	4	5	53	47	9				1		5	1,921
Morbilli	3	20	554	544	2	2			4	2	23	11,407
Parotitis epidemica	19	22	260	297		2					2	5,083
Pyæmia	1		1	1							1	145
Rabies			1		1							88
Rheumatismus articularis acutus	11	13	118	98	15	12	1		2		14	6,749
Rheumatismus articularis chronicus	13	9	56	40	12	15	1		1		9	3,121
Rubella		15	30	45								571
Scarlatina	2	6	17	22							3	962
Septicæmia		4	1							3	2	137
Tuberculosis miliaris acuta		1	4	1	2	1				1		85
Tuberculosis pneumonica acuta	5	10	36	15	18	14			1	1	2	1,438
Tuberculosis pneumonica chronica	42	64	178	38	87	74	2			7	76	18,661
Tuberculosis of other parts	2	6	5	6	2	1				2	2	961
Vaccina	1	2	12	14							1	192
Varicella		2	15	17								356
Variola	1		8	8						1		197
Other diseases of this class		3	3	4	2							201
Class III:												
Constitutional disorders of nutrition—												
Anæmia	2	3	36	23	8	4	1		1	1	3	1,435
Debilitas senilis	3		4	4	1	1					1	361
Diabetes mellitus			5	1		2	1				1	191
Hæmophilia			3	2		1						152
Leucocythæmia	1		1	1						1		32
Lithæmia			2	2								237
Pseudoleucocythæmia		1									1	56
Purpura hæmorrhagica		1		1								164
Purpura simplex		1		1								6
Other diseases of this class	2	3	4	5		1	1				2	230
Class IV:												
Diseases of the nervous system—												
Apoplexia	1		1			1				1		307
Atrophia muscalaris progressiva			2	1		1						71
Cephalalgia	1		10	7	1	1					2	320
Chorea	1		5	1		5						223
Dementia	3	8	36	8	3	15		18			3	1,103
Epilepsia	5	9	51	16		43	1		2		3	1,553
Febris continua simplex	3	6	22	25	2						4	1,049
Febris ephemera	1	1	2	3	1							37
Febris thermica			1	1								13
Hemiplegia		1	9	2	2	3				2	1	467
Insomnia			2	2								36
Irritatio spinalis			1			1						42
Mania	2	3	13	3		1		12	1		1	359
Melancholia	5	5	56	20	9	11		21	1		4	1,86

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Detailed statement, 1907—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS IV—Continued.												
Diseases of the nervous system—Continued.												
Meningitis			2							1	1	15
Monoplegia	2		3	2	1	1					1	303
Myelitis		1	1		1						1	133
Nausea marina			4	2		1					1	128
Neuralgia	2	3	5	6	1	3						337
Neurasthenia	6	19	73	49	15	11	13	1			9	2,917
Neuritis	10	3	25	20	8	6			2		2	1,368
Neuritis multiplex			2			1					1	272
Neurosis hysteroidea	1	4	9	7	1	5		1				323
Paranoia	2	1	11	3	1	1		9				274
Paraplegia	1	1	2	1	1	2						109
Prostratio thermica			4	2		2						103
Sciatica	3	1	8	7	3		1				1	889
Sclerosis lateralis spastica	1	3	2	1	2	2					1	212
Sclerosis multiplex		1		1								13
Sclerosis spinalis posterior	1		4		2	3						215
Syncope	1		2	2							1	94
Vertigo	2	1	5	4		3					1	313
Other diseases of this class		1	7	2		2		2			2	195
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia			5	5								103
Amaurosis			3	1		2						121
Amblyopia	2	4	32	18		6			2		12	868
Asthenopia			16	7	1	7					1	609
Astigmatismus		1	11	9		3						402
Blepharitis			1	1								99
Cataracta		1				1						18
Choroiditis		1	2	1		2						248
Conjunctivitis	3	1	36	30	2	7					1	1,541
Corneæ ulcus	1		2	3								100
Dacryocystitis		1	1	1		1						17
Glaucoma	1		3	3	1							73
Iritis	4	1	12	13	1	2					1	890
Keratitis		1	4	2	1	1					1	267
Leucoma		1	1	2								56
Myopia	1	3	11	7	1	5					2	426
Neuritis optica	1	4	5	1	2	6					1	391
Obstructio lacrimalis	1			1								69
Panophthalmitis			2	2								78
Pterygium	1	1	16	17		1						503
Retinitis		2	6	6	1	1						315
Sclerotitis			1			1						161
Trachoma		1	2	1	1	1						220
Other diseases of this class		1	8	4		4	1					213
CLASS VI:												
Diseases of the auditory apparatus—												
Otitis externa		1	5	4		1					1	207
Otitis media	6	18	75	47	8	34			1		9	3,810
Surditas		4	20	6		9	1		1		7	754
Other diseases of this class	1	1		1		1						64
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus			1	1								11
Rhinitis acuta			4	4								32
Rhinitis chronica	1	6	13	14	1	5						901
Other diseases of this class		1	1	1			1					71
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1—Diseases of the digestive apparatus—												
Ani prolapsio	1	1	1	2		1						117
Ani rhagades		1	2	2		1						84
Appendicitis	21	19	157	151	10	6	7		1	1	21	8,580
Catarrhus gastricus acutus	1	3	22	22					1	1	2	643
Catarrhus gastricus chronicus	5	5	37	24	7	11	1				4	2,051

Detailed statement, 1907—Continued.

12. NAVAL HOSPITALS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class VIII—Diseases of the Nutritive Apparatus—Con.												
***Subsidiary Class 1—Diseases of the digestive apparatus*—Con.**												
Catarrhus intestinalis acutus		5	22	24			1				2	723
Catarrhus intestinalis chronicus	1	3	16	13	3	2	1				1	988
Cholelithiasis	2	1	6	4		1	1			2	1	240
Colica	1	2	16	19								230
Constipatio	3	1	3	5		1					1	95
Dentis caries		1	2	3								45
Diarrhea simplex			7	6					1			139
Dyspepsia nervosa	2		1			3						143
Fistula in ano	6	6	39	38	6		1				6	2,752
Gastralgia		1	4	5								60
Glossitis		1		1								7
Hæmorrhois	13	9	121	117	7	5			3		11	3,966
Hepatis congestio			5	2	3							107
Hepatitis chronica			8	2		2				2	2	569
Hepatitis suppurativa	2	1		3								87
Hypertrophia tonsillaris	1	1	8	9							1	189
Icterus	2	1	11	13							1	559
Intestini recti strictura	4		8	8	2						2	238
Obstructio intestinalis			2	1						1		47
Periodontitis		1	1	2								50
Periproctitis		1				1						13
Peritonitis		2	3	1	1					3		187
Pharyngitis			9	7		1	1					242
Stomatitis	1	1	3	4	1							171
Tonsilitis	17	10	343	348	4				3		15	4,123
Ulcus gastricum	2	2	6	5	2	1	1			1		380
Other diseases of this class	4	2	16	16	2	1			1		2	645
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		2	5	4	2					1		581
Angina pectoris	1	1	6	4		4						473
Arteriosclerosis		1								1		2
Cordis dilatatio	1	1	6	2	1	2				1	2	371
Cordis hypertrophia			2			2						68
Cordis palpitatio	7	5	42	24	9	17			1		3	1,517
Cordis valvularum morbus	5	16	39	15	4	30	1		1	5	4	2,061
Endocarditis		2	3	2		2				1		214
Pericarditis			1	1								60
Phlebitis			2	2								37
Thrombosis	2			1		1						143
Varix	6	1	32	27	5	1			1		5	1,477
B—Lymphatics—												
Anæmia splenic		1								1		41
Bronchocele		2	4	2		2					2	214
Lymphadenitis	3	2	24	25	1				2		1	1,411
Lympyhangitis	1	3	5	6	2						1	268
Splenvpertrophia	1		1	2								110
Other diseases of this class		1	4	2	1	2						225
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma	1	1	25	10	3	10				2	2	1,386
Bronchopneumonitis		6	14	16						3	1	588
Bronchitis acuta	8	5	84	88		1			1		7	2,054
Bronchitis chronica	8	4	44	38	7	6			1		4	1,819
Catarrhus bronchialis	1	1	28	27	1						2	762
Empyema	1									1		53
Hæmoptysis			10	7	1						2	217
Laryngitis acuta	1	1	7	9								146
Laryngitis chronica		1	6	4		1					2	540
Œdema pulmonalis			1							1		1
Pleuritis acuta	6	5	36	38	1				1	1	6	2,265
Pleuritis chronica	1	1	11	9	2						2	376
Pleuritis purulenta	1	3	12	8	3						5	1,596
Other diseases of this class		5	3	5	1	2						339

Detailed statement, 1907—Continued.

12. NAVAL HOSPITAL—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class IX:												
Diseases of the motory apparatus—												
Ankylosis	1		4	2		1					2	161
Arthritis	2	2	21	16	2	5					2	1,237
Arthritis deformans		1	2		1						2	149
Bursitis	3	3	8	10	2	2						420
Caries	2	2	4	4	2						2	410
Contractura	1	1	4	5	1							182
Gangræna			1			1						52
Myalgia acuta	1	9	23	26	1	4					2	1,151
Myalgia chronica	7	4	33	24	4	8	1				7	1,938
Necrosis		3	9	9	2	1						626
Ostitis	1		4	2	1						2	518
Osteomyelitis	2		3	1	2	2						577
Periostitis	2		14	13	2	1						782
Synovitis	3	5	33	25	2	10	1		1		2	1,851
Thecitis	1	1	3	3		1					1	295
Other diseases of this class	2	14	12	15		8					5	861
Class X:												
Diseases of the cutaneous apparatus—												
Abscessus	11	12	81	89	7	2					6	3,609
Acne			1								1	5
Carbunculus			5	5								161
Cellulitis	3	5	27	29	1				1		4	1,219
Ecthyma			2	2								29
Eczema	2	1	26	23	1	1	1				3	1,559
Erythema			6	6								65
Furunculus	1	1	3	4							1	58
Herpes simplex			1	1								61
Impetigo			2	1							1	76
Paronychia			1	1								35
Psoriasis		1	4	4							1	229
Ulcus	5	3	22	23	1	2	1				3	1,476
Unguis involutus		1	8	8							1	232
Urticaria			2	1							1	79
Verruca			6	4							2	324
Other diseases of this class	1		5	4	1						1	360
Class XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	34	9	212	190	22	4			6		33	11,344
Arthritis gonorrhoica	18	5	106	69	18	22			1		19	6,120
Balanitis			1	1								46
Calculus		1		1								14
Chancroid	14	9	55	66	4				1		7	2,915
Cystitis	3		33	24	8	1			2		1	1,725
Enuresis	2	2	19	6	3	13					1	964
Epididymitis	5	4	57	61	1						4	1,809
Fistula urinalis	3		6	5	2	1					1	505
Gonorrhea	22	43	124	143	10	7			3		26	6,577
Hæmaturia			5	3							2	149
Hydrocele	3	2	15	17							3	597
Nephritis acuta	1	2	21	11	4	6				1	2	1,796
Nephritis chronica	5	6	21	14	2	7			1	6	2	1,791
Nephrolithiasis	1		2	2		1						160
Ophthalmia gonorrhoica	1	3	10	5	3	3					3	786
Orchitis	10	7	88	87	4	1					13	3,535
Paraphimosis	1		4	5								312
Phimosis	4	6	47	48	2	1			1		5	1,688
Prostatitis	1	1	7	7	1		1					318
Pyelitis	2	1	4	5		2						303
Syphilis consecutiva	79	74	336	287	40	80	2		14	1	65	25,577
Syphilis primitiva	2	2	14	14	1	2					1	815
Urethræ strictura	3	7	29	28	4	2					5	1,467
Urinæ retentio			8	5							3	334
Varicocele	24	13	142	154	6	5			7		7	5,152
Verruca acuminata			4	2	1	1						169
Other diseases of this class		1	5	2							4	172

Detailed statement, 1907—Continued.

12. NAVAL HOSPITAL—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XII:												
Cysts and new growths—												
Adenoma			2	2								119
Angeioma			1								1	26
Carcinoma		3	1	2						2		327
Chondroma			1	1								25
Cystis	1		9	9						1		196
Epithelioma			1	1								87
Fibroma			3	2		1						199
Lipoma			4	3		1						94
Osteoma	2		5	6	1							185
Sarcoma		1	1	2								110
Other diseases of this class			10	4		3					3	544
CLASS XIII:												
Injuries—												
Ambustio ex calore	4		29	21	2	1				4	5	1,762
Asphyxia		1		1								8
Asphyxia ex submersione		1	2	1	1					1		28
Concussio			10	8			1				1	284
Contusio	5	3	28	28		1	1			1	5	1,347
Deformitas	11	6	80	35	8	41	1		1		11	3,632
Fratura	30	10	165	132	22	22	3		1	1	24	11,369
Hernia	33	11	218	184	19	29	1		2		27	10,993
Luxatio	2	3	15	18	1						1	585
Membranæ tympani ruptio			1								1	14
Membri clades			9	4	1				1		3	389
Musculi ruptio	1		1	1		1						36
Visceris ruptio		1								1		5
Stremma	6	8	44	45	1	5	1		2		4	1,721
Virium defectio		1				1						22
Vulnus contusum	1	1	11	9		2					2	585
Vulnus incisum	1	3	16	14	2	1			1	1	1	813
Vulnus laceratum	4	2	33	27	3	2			1		6	1,833
Vulnus punctum	2	1	10	9	1	1					2	321
Vulnus sclopeticum	4	1	29	18	3	6				3	4	1,406
Other diseases of this class	3	2	5	3	4	3						548
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum	1		6	5	1	1						118
CLASS XV:												
Poisons—												
Alcoholismus	4	7	45	49	1	5					1	762
Dermatitis venenata	2		3	5								68
Venenum irritans			3	1		1				1		29
Venenum neuroticum		6	15	5	3	10					3	344
Vulnus venenatum	3	3	11	16							1	522
Other diseases of this class		3	4	4							3	159
Total	846	997	6,905	6,135	613	832	68	64	103	118	815	309,021

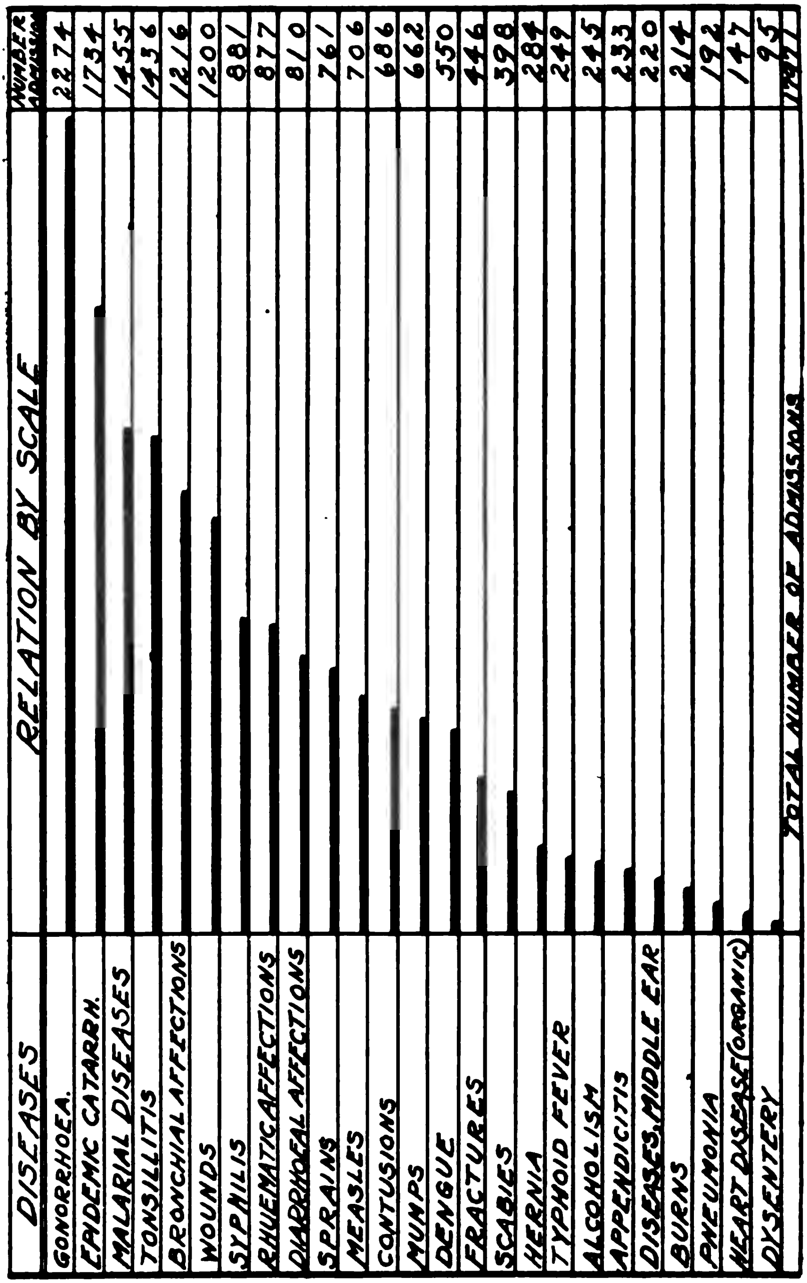
13. *Report of vaccination in the Navy and Marine Corps for the year 1907.*

Classification.	Successful.	Unsuccessful.	Undetermined.	Percentage of success.[a]
CLASS 1.—No evidence of previous vaccination	2,321	1,382	478	62.68
CLASS 2.—Evidence of previous vaccination	5,667	8,819	1,709	39.12
CLASS 3.—Evidence of having had smallpox	12	96	9	11.11
Total	7,900	10,297	2,196	43.18

[a] Is based upon results that were determined.

XIV

Prevalence of Special Diseases and Injuries in the Navy and Marine Corps During the Year 1907.



15. *Mortuary record for the Navy and Marine Corps for the year 1907.*

Cause of death.	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.
Alcoholismus		2	4		6
Ambustio ex calore	4		8		12
Anæmia	2				2
Aneurysma	1		2		3
Angina pectoris		1			1
Apoplexia	1		1		2
Appendicitis	1				1
Arterio sclerosis	1				1
Asphyxia			2	1	3
Asphyxia ex submersione	1	3	36	2	42
Asthma	2				2
Broncho-pneumonitis	3	1		1	5
Carcinoma	2				2
Catarrhus gastricus acuta	1				1
Cellulitis			1		1
Cholelithiasis	2				2
Cholera		1			1
Concussio		1			1
Contusio	1				1
Cordis dilatatio	1		1		2
Cordis valvularum morbis	5		4	2	11
Cystitis	1				1
Diphtheria	2				2
Dysenteria acuta			1		1
Embolismus			1		1
Empyema	1				1
Endocarditis	1				1
Febris cerebro spinalis	13		1		14
Febris enterica	13	1	2	1	17
Febris pneumonica	14	1	4		19
Fractura	1	1	8		10
Hemiplegia	2				2
Hepatitis chronica	2	1		1	4
Leukemia	1				1
Meningitis	1	1	2		4
Morbilli	2				2
Musculi ruptio			1		1
Myelitis				1	1
Nephritis acuta	1				1
Nephritis chronica	6		3	1	10
Nephrolithiasis			1		1
Obstructio intestinalis	1				1
Œdema pulmonalis	1	1			2
Paresis				1	1
Peritonitis	3		1	1	5
Pleuritis acuta	1				1
Pyæmia		1	1		2
Rheumatismus articularis acutus		1			1
Septicæmia	3		1	1	5
Syncope			1		1
Syphilis consecutiva	1				1
Tuberculosis miliaris acuta	1		1		2
Tuberculosis pneumonica acuta	1				1
Tuberculosis pneumonica chronica	7			5	12
Tuberculosis of other parts	2				2
Ulcus gastricus	1				1
Uræmia		1			1
Variola	1	1	2		4
Venenum irritans	1				1
Visceris ruptio	1		1	1	3
Vulnus incisum	1	2	2		5
Vulnus laceratum			3		3
Vulnis sclopeticum	3	3	6		12
Total	118	24	102	19	263

XVI

Deaths in the Navy & Marine Corps during Year 1907.
Average Strength 46336
Ratio per 1000 of Strength 5.67.

CAUSE OF DEATH	RELATION BY SCALE	No. DEATH
DROWNING		42
PNEUMONIA		19
TYPHOID FEVER		17
CEREBRAL SPINAL FEVER		14
TUBERCULOSIS, PULMONARY		13
BURNS		12
GUN-SHOT WOUNDS		12
HEART DISEASE, VALVULAR		11
BRIGHT'S DISEASE		11
FRACTURES		10
ALCOHOLISM		6
BRONCHO-PNEUMONIA		5
PERITONITIS		5
BLOOD-POISONING		5
INCISED WOUNDS		5
CIRRHOSIS OF THE LIVER		4
MENINGITIS		4
SMALL POX		4
ANEURISM		3
ASPHYXIA		3
RUPTURED VISCERA		3
LACERATED WOUNDS		3
ANAEMIA		2
APOPLEXY		2
ASTHMA		2
CARCINOMA		2
GALL STONES		2
HEART DILATATION		2
DIPHTHERIA		2
PARALYSIS		2
MEASLES		2
DROPSY OF THE LUNGS		2
BLOOD POISONING, PYAEMIC		2
TUBERCULOSIS, MILIARY		2
TUBERCULOSIS, OTHER PARTS.		2
ANGINA PECTORIS		1
APPENDICITIS		1
ARTERIO SCLEROSIS		1
CATARRH GASTRIC		1
CELLULITIS		1
CHOLERA		1
CONCUSSION		1
CONTUSION		1
INFLAMMATION OF BLADDER		1
DYSENTERY		1
ARTERIAL OBSTRUCTION		1
PLEURISY, SUPPUVATIVE		1
INFLAMMATION, ENDOCARDIUM		1
LEUKEMIA		1
RUPTURE OF MUSCLES		1
INFLAMMATION SPINAL CORD		1
STONES IN KIDNEY		1
INTESTINAL OBSTRUCTION		1
PARESIS		1
PLEURISY, ACUTE		1
RHEUMATISM ARTICULAR		1
SYNCOPE		1
SYPHILIS		1
ULCER GASTRIC		1
URAEMIA		1
POISONING IRRITANT		1
TOTAL	NUMBER DEATHS	263

CONCLUSION.

The bureau desires that this report be regarded in the light of a supplement to its report for 1907, for, with the new matters which are continually arising and claiming attention and the progressive character of the operations of the Medical Department, it is impossible, for lack of time and space, to re-discuss many problems and reiterate recommendations which were and are considered important. They have lost nothing in importance by the mere lapse of a year, and the bureau therefore again invites the department's attention to such subjects as torpedo-boat service, engineer's force, clothing, and cigarette smoking, etc.

The work of the Medical Department has greatly increased in every direction and the burden and responsibility naturally fall upon the bureau, taxing its small force to the utmost, so that the period of leave which has been granted each officer and clerk has been a respite actually necessary to his health. That all work has been kept up to date is a fact which attests a commendable attention to duty on the part of all; but it is contrary to the best interests of the individual and the work in hand that the force should be under such continual pressure to complete the daily business with due expedition, and there is urgent need that it be enlarged, particularly in view of the continuous growth of the navy.

The above observations in respect to the bureau are correspondingly true of the Medical Department in general throughout the service—in hospitals, at stations, and on board ship. There are too few officers and men in the Medical Department to perform the work demanded of it without overtaxing their energies and it is only by an untiring devotion to duty and the uncommon ability which has been shown that the record of professional services for the year is so entirely creditable. Each division of the Medical Department of the navy has continued to advance in efficiency and the Medical Department as a whole, in respect to personnel, materiel, and organization, is rendering excellent service and is rapidly being placed in a condition of highest efficiency. This report embodies a number of recommendations to that desirable end, all of which merit the department's careful attention, but the three most important of these concern the reorganization of the Hospital Corps, the establishment of a corps of dental surgeons, and the authorization of and appropriation for two specially constructed hospital ships. These provisions are necessary to complete the equipment of the Medical Department for a full and efficient discharge of its growing responsibilities, and it is respectfully requested that the department accord these matters its earnest support and urge their enactment during the pending session of the Sixtieth Congress.

P. M. Rixey,
Surgeon-General, U. S. Navy.

The Secretary of the Navy.

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NAVY DEPARTMENT
BUREAU OF MEDICINE AND SURGERY

ANNUAL REPORT

OF THE

Surgeon-General, U. S. Navy

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

TO THE

SECRETARY OF THE NAVY

FOR THE FISCAL YEAR

1909

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REPORT

OF THE

SURGEON-GENERAL, UNITED STATES NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1909.

SIR: In obedience to instructions contained in the department's letter of July 1, 1909, I have the honor to submit a report of the operations of this bureau for the fiscal year ending June 30, 1909, beginning with estimates for the regular annual appropriations for the fiscal year 1911. The report also shows the condition of the naval hospital fund, together with a statement of the cost of maintenance of hospitals, and contains information and recommendations relative to the various subjects which appear in the table of contents. A study of the health and sanitary conditions of the Navy and Marine Corps, ashore and afloat, including tables and charts of statistical data, forms an important part of the record of the Medical Department herewith presented. In so far as health conditions and vital statistics are concerned, the calendar year 1908 is alone considered.

The bureau desires at the outset to invite the department's attention to the fact that the general trend of health and sanitary conditions in the navy is toward improvement. The records for the past few years give striking support to the assertion, and as the reduction both in morbidity and the relative damage to the service from sick days has been progressive, chance can have no place in the assignment of a cause, and reason for the change must be found in some definite, positive influence or influences. It is impossible to escape the belief, amounting to a conviction, as pointed out in the report for last year, that the navy is enjoying the benefits of the advance of preventive medicine to a fuller degree than ever before, and that its active participation in the application of sanitary science is becoming more and more effective. This in turn argues the greater activity and efficiency of the Medical Department, not only in carrying on the actual work which falls within its responsibilities, but in giving wide publicity to its aims through these annual reports and by otherwise awakening the interest of the authorities upon whom the Medical Department largely depends for the execution of indicated reforms. There is need that all in the service shall be in possession of that information which will help them to understand the dictates of the times, so important in the maintenance of physical efficiency, and the Medical Department is striving to this end by its attention to the educational propaganda.

ESTIMATES.

The bureau's estimates for the fixed annual appropriations are of necessity essentially the same in purpose and scope as the appropriations made for the current fiscal year, except as to the amounts to be appropriated, which should be increased, if efficiency is to be maintained with the corresponding growth of the personnel of the Navy and Marine Corps, as follows:

Under the appropriation "Medical Department" an increase of $15,000 has been recommended to meet the increased expenses incident to the enlistment of 2,000 additional men and 1,000 additional apprentices included in the department's estimates.

Under the appropriation "Contingent" an increase of $6,950 has been recommended to provide $4,950 to meet the increased expenses incident to the enlistment of the 3,000 additional persons mentioned in the preceding paragraph, and to provide a further $2,000 to defray the cost of printing for the naval service, heretofore paid from the Navy Department allotment, but now required by the accounting officers of the Treasury to be paid from naval appropriations.

No change in phraseology or increase in amount has been recommended in the beneficent appropriation for bringing home the remains of officers and enlisted men of the Navy and Marine Corps. Except when a disaster on board some naval vessel has added unexpected expenses, the appropriation has been made sufficient by the exercise of the strictest economy and by utilizing government conveyances both of the navy and the army for the transportation of remains.

The estimate heretofore submitted annually for an appropriation for keeping in repair the buildings, grounds, and appendages of our naval hospitals at home and abroad has been eliminated, in obedience to the department's order, and is not submitted this year, thus effecting a decrease of appropriation in this item of $45,000 and a net decrease in all annual appropriations recommended by the bureau of $23,050. The expenses incurred for keeping in repair naval hospitals will be borne by the naval hospital fund under authority of section 4810, Revised Statutes, and without charge to any government appropriation.

In my annual report for the fiscal year 1907 it was stated in connection with the matter of appropriations by Congress for the establishment and enlargement of naval hospitals that the necessity no longer existed for such appropriations, as the revenues of the naval hospital fund provided funds sufficient to meet all necessary requirements, if such expenditures should be authorized by the Secretary of the Navy under authority of section 4810, Revised Statutes. Again, in my annual report for the fiscal year 1908 it was announced that for the first time in many years no estimates for public works were transmitted with that report, the Secretary of the Navy having authorized, under the authority of the law just mentioned, the expenditures of moneys from the naval hospital fund for the building, remodeling, and bringing up to modern conditions the existing hospitals and the establishment of new hospitals at naval stations not previously provided with hospital facilities.

The naval-hospital fund, created, without appropriation, by an act establishing naval hospitals, approved February 26, 1811, draws its revenues from the naval service and not from appropriations by Congress. Section 4810 of the Revised Statutes authorizes the Secretary of the Navy to procure at suitable places sites for naval hospitals, and to erect necessary buildings and additions to buildings when the funds permit and circumstances require. Both of the conditions imposed by this statute exist at the present time, and unless the increment of the naval hospital fund should be diverted to other purposes than those contemplated in the laws creating it, it will probably always be sufficient for the maintenance of an adequate hospital service in the navy without appealing to Congress for aid by appropriation.

This fund is a trust fund contributed by the personnel of the navy, and, while it is not the property of the United States, is administered under provisions of law. It bears all expenses for the maintenance of naval hospitals, including subsistence of sick and attendants, fuel, ambulance service, repairs and additions to buildings, furniture and equipment, care of grounds, roads, wharves, outhouses, etc., and the purchase of sites and the erection thereon of new buildings. During the fiscal year ended June 30, 1909, $1,784,282.02 was expended from this fund for the maintenance and betterments of the hospital service of the United States Navy, all of which was contributed by the personnel of the navy and none of which was appropriated by Congress. No estimate is submitted herewith for any new appropriation for public works.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows, viz:

Balance on hand July 1, 1908	$1,615,549.13
Transferred to credit since July 1, 1908	545,419.21
Total	2,160,968.34
Expended since July 1, 1908	1,784,282.02
Balance on hand June 30, 1909	376,686.32

Statement of cost of maintenance of United States naval hospitals for the fiscal year, 1909.

	Portsmouth, N. H.	Chelsea, Mass.	Newport, R. I.	New York, N. Y.	Philadelphia, Pa.	Washington, D.C.
Provisions	$7,104.91	$17,816.50	$14,612.68	$26,002.11	$17,093.05	$11,675.37
Ambulance service	202.00	1,104.61	785.53	1,461.84	951.32	....
Fuel, light, water	2,174.50	7,865.99	5,060.25	11,639.30	3,750.31	1,642.57
Medical supplies	1,138.31	5,288.77	3,971.22	7,499.50	4,098.32	1,717.24
Miscellaneous supplies	2,628.47	4,650.13	1,489.92	9,860.83	9,665.95	3,678.84
Total cost of maintenance	13,248.19	36,726.00	25,919.60	56,463.58	35,558.95	18,714.02
Sick days	6,997	29,777	20,214	35,465	17,920	3,516
Subsistence days, Hospital Corps	3,523	8,727	7,306	11,128	6,932	12,436
Subsistence days, Nurse Corps	....	....	....	119	....	....
Subsistence days, civilian employees	2,375	5,455	4,015	9,586	4,758	2,895
Total number of days subsistence	12,895	43,959	31,535	56.298	29,610	18,847
Average cost per diem for maintenance	$1.02	$0.83	$0.82	$1.00	$1.20	$0.99
Average cost per diem for subsistence	.55	.40	.46	.46	.57	.61

Statement of cost of maintenance of United States naval hospitals for the fiscal year, 1909—Continued.

	Naval Medical School Hospital, Washington.	Annapolis, Md.	Norfolk, Va.	Port Royal, S. C.	Pensacola, Fla.	San Juan, P. R.
Provisions	$24,305.74	$10,481.15	$35,023.01	$1,478.65	$4,448.54	$6,251.80
Ambulance service	1,640.15	482.90	797.42		275.93	537.98
Fuel, light, water	9,101.01	2,765.06	8,754.68	39.54	339.53	1,348.20
Medical supplies	4,004.40	3,829.73	13.632.46	769.79	89.34	1,760.07
Miscellaneous supplies	4,686.07	2.876.97	7,097.38	797.93	643.83	1,101.42
Total cost of maintenance	43.737.37	20,435.81	65,304.95	3,085.91	5,797.17	10,999.47
Sick days	24.515	11.581	44,700	1,327	2,726	3,563
Subsistence days, Hospital Corps	10,687	6.425	17,084	760	1,880	2,740
Subsistence days, Nurse Corps			7,582			
Subsistence days, civilian employees	4,378	2,550	12,198	687	1,855	1,278
Total number of days subsistence	39.580	20.556	81,564	2,774	6,461	7,581
Average cost per diem for maintenance	$1.10	$0.99	$0.80	$1.11	$0.89	$1.45
Average cost per diem for subsistence	.61	.50	.42	.53	.68	.82

	Las Animas, Col.	Mare Island, Cal.	Puget Sound, Wash.	Sitka, Alaska.	Canacao, P. I.	Yokohama, Japan.
Provisions	$54,361.52	$41.958.79	$6,135.29	$1,050.65	$29,404.37	$6,129.70
Ambulance service	5,503.76	1,448.33			1,186.39	26.88
Fuel, light, water	12,516.48	8.931.81	1,403.14	1,024.50	6,748.33	3,262.91
Medical supplies	16,835.24	4,237.08	3,018.43	700.56	6,065.78	413.62
Miscellaneous supplies	5,646.38	6.282.26	2,249.49	590.92	13,009.82	1,732.69
Total cost of maintenance	94,863.38	62.858.27	12,806.35	3,366.63	56.414.69	11,565.80
Sick days	45,364	47.358	10,670	643	38,539	4,619
Subsistence days, Hospital Corps	11,005	20,926	3,975	711	12,530	2,406
Subsistence days, Nurse Corps	2,372					4,182
Subsistence days, civilian employees	16,279	7,913	1,314	365	5,344	
Total number of days subsistence	75.020	76.197	15,959	1,719	56,413	11,207
Average cost per diem for maintenance	$1.26	$0.82	$0.80	$1.95	$1.00	$1.03
Average cost per diem for subsistence	.72	.55	.38	.61	.52	.54

MEDICAL CORPS.

At the beginning of the fiscal year ending June 30, 1908, the Medical Corps of the Navy consisted of 15 medical directors, 15 medical inspectors, 87 surgeons, 89 passed assistant surgeons, 86 assistant surgeons, and 10 acting assistant surgeons. This latter grade is to be considered separately and is, therefore, not included in the following statements. There were 51 vacancies in the corps at this time, only 7 less than at the same period of the year before, which represented 12 losses in various ways and the unfilled legislative vacancies. During the past fiscal year changes have occurred in the regular corps by every means possible except dismissal. Forty officers were promoted, 2 to the grade of medical director, 5 to that of medical inspector, 10 to that of surgeon, and 23 to that of passed assistant surgeon, either in fact or in point of eligibility under the law. Five officers took advantage of the thirty-year retirement law (1 medical director, 3 medical inspectors, and 1 surgeon). There were 1 retirement on account of age (a medical director), 5 retirements for disability (3 surgeons and 2 passed assistant surgeons), 3 deaths (1 medical inspector, 1 passed assistant surgeon, and 1 assistant surgeon), 3 resignations (1 passed assistant surgeon and 2 assistant surgeons), and 31 appointments as assistant surgeons, which left 51 vacancies to be filled at the close of the fiscal year 1909. In view of the fact that the annual increase of the corps authorized by law ceased last year, that number of vacancies makes rather a poor showing and is contrary to the reasonable expectation expressed last year that the corps would be quickly recruited to its full strength.

No effort has been spared to bring the career offered by the naval medical service to the attention of young physicians throughout the country and especially at the various medical centers by personal interview and by the distribution of literature. The medical officers stationed in the large cities of the east and west have exerted themselves in this direction, and the medical press has generally published and disseminated detailed information. The medical service of the navy in its general aspects has also been the subject of addresses delivered by medical officers before a number of representative medical societies, emphasis being laid upon the growing opportunities for professional work and the increased pay and emoluments as provided by the act of Congress approved May 13, 1908, yet, in spite of all that has been done to inform the young physicians of the country concerning the naval medical service, they have exhibited a very apathetic disposition to enter it, and the bureau is constrained to believe that this is very largely due to the very inadequate compensation that the navy, in striking contrast to the army, is able to offer candidates for the regular corps during their probationary service in the grade of acting assistant surgeon. Under existing law, the army offers candidates a commission with pay at the rate of $2,100 per year and all the allowances of the lowest commissioned grade, while the navy can only offer candidates an appointment with pay at the rate of $1,400 a year and absolutely no allowance whatever. It is clear that something must be done to correct this great disparity in the relative attractiveness of the army and navy from a financial point of view, if existing vacancies are ever to be filled by the sort of men the navy needs. It will be best accomplished by the creation of a medical reserve corps for the navy, discussed in another section of this report, or by the clause contained in the dental bill now before Congress, which reads that "the rank of acting assistant surgeon shall carry the like pay and allowances of assistant surgeon."

Until October 8, 1908, there were two medical boards, one at Washington, D. C., and the other at Mare Island, Cal., for the examination of candidates for commission as assistant surgeons. On that date the Secretary of the Navy, upon recommendation of the bureau, issued an order which in effect limited the examination of candidates for admission to the regular service to the medical examining board in Washington, D. C., and denied eligibility for examination for commission in the Medical Corps to all entrants until they had completed the course of instruction at the Naval Medical School. As a result of this change only 37 permits were issued, and of this number those which had not been used before the above mentioned date were revoked.

Table showing applicants examined for admission to the Medical Corps of the Navy from July 1, 1908, to June 30, 1909, and place of examination and result.

	Total number examined.	Qualified.	Rejected physically.	Rejected professionally.	Withdrew.
Washington, D. C.	45	18	9	11	7
Mare Island, Cal.	5	2	1	....	2
Total	50	20	10	11	9

The percentage of successes in comparison with the number examined was again small, though not as striking as in previous years, in all probability due to the fact that a certain number of those examined had enjoyed the benefit of the course of instruction at the Naval Medical School. In this respect the school is no less an advantage to the service than to individuals, as has been previously pointed out and will be touched upon in the section "Acting assistant surgeons" of this report. There has been no relaxation in the requirement that successful candidates must show a high standard of personal and professional qualifications, for, in spite of the urgent necessity for a full corps of medical officers, the good of the service can not be sacrificed to mere numbers, and a certain number of vacancies is of decidedly greater value than an equal number of carelessly selected inefficient officers. The periodic examinations for promotion are also thorough and searching, though it is entirely within the possibility of any officer to satisfy the requirements who is reasonably familiar with the advances in medical sciences and who understands and is capable of discharging the various duties of his office. The bureau intends that the members of the Medical Corps shall keep themselves informed and prepared to meet or undertake any problem, medical or medico-military in character, which may be properly imposed upon them as representatives of one or another of the several grades. It was with a view to stimulating a substantial interest in and an intelligent study of the medico-naval matters, which to-day are assuming considerable importance, that the bureau recommended a modification of the professional requirements for promotion to medical inspector, as promulgated by Special Order No. 2, Navy Department, Washington, January 12, 1909. There were 5 officers who failed to qualify professionally for promotion (1 passed assistant surgeon and 3 assistant surgeons) and 1 assistant surgeon who failed at the time of his examination to qualify physically.

During the past eight years the bureau has entertained an ambition for the progressive efficiency of individual medical officers and the corps as a whole and has labored toward this end as a definite object with consistent and unabated energy by every means at its command. No proper expense has been spared to surround the members of the corps with every necessary facility to carry on their work efficiently, and as a further indispensable aid in the accomplishment of his aim conscientious endeavor has been made to foster contentment by recommending as few transfers from one duty to another as possible and to give each officer a legitimate tour of shore duty. Such a policy enables officers to settle down, as it were, in their work and become familiar with the duties of their respective stations and also affords them a reasonable periodic opportunity for professional refreshment. This is desirable for all officers of course, but is particularly important for young officers who are forming their habits and not yet fully composed as regards their professional abilities in relation to the service.

The strength of the corps during the period embraced in this report has averaged about 306, including 10 acting assistant surgeons, and allowing what it is believed to be the minimum estimate, 2 per cent each for sickness, leave, and unemployed (on waiting orders or in transit), and eliminating from consideration those who have been on recruiting duty and employed at the schools, laboratories, bureau offices, and on regular boards (about 58 in all), it may be seen that, theoretically, there were only about 248 medical officers available for the care of 52,913 officers and men of the Navy and Marine Corps and for all other purposes other than the duties specified above, both ashore and afloat. As a matter of fact, there were less than 248 medical officers to meet the service's demands for practical professional work. Thirty-nine of these were in attendance upon a course of instruction at the Naval Medical School for six months and 21 for a period of two months, which, estimated on the basis of a year, is approximately equivalent to 40 medical officers, and further reduced the list of officers available for general service to 208 and practically gives a ratio of 1 medical officer to every 254+ of naval strength. These facts represent a state of affairs distinctly worse than that reported last year with respect to adequate medical supervision, the ratio then reported being 1 to 210, and there is no other expectation possible than that the ratio will continue to be a widening one.

With due regard for a thorough discharge of the growing responsibilities devolving upon the Medical Department, the bureau can not but reiterate the importance of the consideration which this increasing relative dearth of medical officers suggests and which was brought to the attention of the department last year. It is significant that at the end of the fiscal year 1909 the list of applicants for admission to the Army Medical Corps numbers about 235, whereas the number of applicants for the Navy Medical Corps that had not used their permits up to that date was only 29. Not only will effective steps have to be taken to equalize the comparative attractiveness of these two services so that existing vacancies may be promptly filled, but it will be necessary even when this is accomplished to seek authority for an increase in the allowed strength of the regular corps, though the creation of a reserve corps might operate to postpone that necessity for the time being. The present numerical strength of the corps was established in 1903 on what was then believed to be a sufficient basis of estimation, but in the years which have followed conditions have materially changed and new demands are now being made upon the medical branch of the service, which at that time were not and could not be foreseen. As a result, this office is constantly embarrassed by requests for assignments that can not be complied with, and it is worthy of note that "little can be done in the way of preparation for great emergencies with a personnel that is not sufficient to meet the little emergencies that occur in time of peace." In this connection it may be well to give brief attention to the following points:

1. As is well known, to the loss of the service in many ways, no medical officers are available for the great bulk of marine recruiting,

and in the past the bureau has been barely able to meet the demands for service with detachments of marines on field service. At times during the past year 12 medical officers were performing this duty.

2. A minimum of 60 medical officers was required, but, unfortunately, not available for duty at the service hospitals during the past year, the basis of calculation for each of the larger hospitals being 1 commanding officer, 1 executive surgeon, 1 officer for laboratory work, and 1 officer for every 50 patients. With the present capacity of these hospitals, the emergency is always imminent which would require at least 78 medical officers to properly perform the work of these hospitals. This estimation does not take into account the new hospitals at the training station, Great Lakes, at Pearl Harbor, Hawaii, and at Baguio, P. I., the plans for the future development of several of the existing hospitals, or the hospital facilities represented by two hospital ships, all of which taken together and added to the above enumerated need, would create a demand for at least 100 medical officers for hospital purposes alone.

3. The ships are of such enormous size now and promise to be so much larger in the future, with all that this means as regards hygienic and sanitary supervision in the light of modern ideas, that one medical officer no longer suffices even as a temporary makeshift, and on many of the first-class battle ships it is believed that three medical officers could be kept fully occupied in conscientiously and thoroughly carrying on the medical work and hygienic and sanitary duties of this department. Certainly every fleet flagship and possibly every squadron flagship should have three medical officers, the senior of each group occupying the position of fleet or squadron surgeon, and there are at least 32 ships in commission, or about to go into commission, which should carry two medical officers.

4. The liability for personal physical injury or sickness which the Government has recently assumed with respect to its civil employees entails a tremendous amount of work, which largely falls to the lot of the medical department and necessitates the assignment of two medical officers to every yard and station where in the past one officer has been sufficient.

The above are some of the changes referred to which have transpired in the navy in recent years. They constitute features of the service which are sure to make even greater demands for more medical officers, demands which are by no means entirely the outcome of a numerical increase in naval strength. On the other hand, the development of the medical profession in its several branches has imposed new standards upon doctors in every sphere of their activity, and it is no longer possible for a medical officer to cover as large a field of practice as in former years with fidelity to the demands of his profession and the best interests of his patients or the assurance of success in such medico-naval problems as may be intrusted to him. That the medical officers of the navy are efficiently meeting their various responsibilities under these new circumstances and conditions is attested on every side. No matter to what duty they have been assigned, their services, with few exceptions, have shown a lively interest in matters before them and have been of excellent character.

During the year a number of officers have performed special duty of a character that either occupied their whole time away from the work pertaining to the navy per se, or such as might be undertaken in addition to their regular duties. In no case, however, has such duty been without at least reflective benefit to the service. Two officers have been serving in the sanitary department of the Isthmian Canal Commission, one is on special duty with the War Department, one was assigned to duty with the Light-house Flotilla for its cruise from the Atlantic to the Pacific side of the continent, one was detailed to cooperate at Pittsburg in certain experiments and tests which were conducted with a view to the prevention or minimizing of mine disasters, one was appointed and served as a member on the advisory board, Hygienic Laboratory, Public Health and Marine-Hospital Service, and on the District Milk Commission, one delivered a course of lectures on "Tropical medicine" at Jefferson Medical College, Philadelphia, Pa., and one delivered a course of lectures on "Naval hygiene" at the New York Post-Graduate School. Many officers have also undertaken special work upon their own initiative, and some original research has been reported, all of which has brought practical benefit to the service and redounded to the credit not only of the officers concerned but to the whole corps. The infusion and cultivation of the professional spirit necessary to such results has been the ambition and aim of the present administration of the medical department from the beginning, and yet, at the very moment of the fullest realization, it seems endangered by the overburden of routine work which makes thoroughness difficult.

There is manifest need for a larger number of medical officers, and there is urgent need, also, for some legislation which will create a reasonable flow of promotion to the higher grades as a matter not only of justice to officers for long and faithful service but as a means of inducing young physicians of a superior sort to enter the navy. The present-day requirements for a degree in medicine from any one of the reputable institutions, both as regards preliminary and medical education, are necessarily comprehensive, and, together with the post-graduate work to fit them for the practical exercise of their academic attainments, consume such an amount of time in the training of the physician that the majority of candidates for admission to the Medical Corps of the Navy are close to the extreme statutory age limit. The average age of the classes at the Naval Medical School for the last three years was 27. In other words, medical students reach advance maturity in acquiring their profession, and upon entering the navy under present conditions are of such an age that there is no probability and only the remotest possibility that they will ever reach the grade of medical director. They will be blocked all along the line for years by those of an earlier date. Aside from the disheartening injustice of this outlook to the individual, it is a state of affairs sure to entail consequences antagonistic to the good of the service.

The Medical Corps is in quite as much need of having comparatively young and active and enthusiastic men in the upper grades as is the line of the navy, more especially as there is not a similar incentive to continued endeavor represented by a prospect of the reward and larger responsibilities of rank beyond that of captain. There are two ways in which the needs of the medical department in this respect might be effected and stagnation prevented. The recommendations of the staff board which was appointed by the Secretary of the Navy August 31, 1906, to investigate and report its judgment upon the laws relating to this question, seem not to have been acted upon, and it is therefore urged that independent steps now be taken to stimulate a more normal flow of promotions, and thus to increase the efficiency of the medical service. There should be either a provision calling for compulsory retirement in the medical corps similar and proportional to that established for the line by the naval personnel act of March 3, 1899, or for compulsory retirement of all surgeons who fail to reach the grade of medical inspector before they become 45 years of age and of all medical directors after a service of five years in that grade.

ACTING ASSISTANT SURGEONS.

The bureau has continued to employ this grade as heretofore, with the modification that since October 7, 1908, it has represented the sole channel of entrance into the regular Medical Corps. As such, it affords a longer or shorter period for the observation and better estimation of the qualifications of individuals before it is too late for the service to easily rid itself of inefficient or otherwise unsuitable candidates for commission as assistant surgeon. It is undoubtedly desirable, and experience confirms the belief, that the Medical Corps of the Navy should be recruited only from those candidates who have demonstrated their fitness for the service—both with respect to the extent of their academic knowledge, as elicited at examination, and their practical ability and general aptitude, as indicated by the manner in which they perform the duties of doctor and officer under actual service conditions. Indeed, some probationary service is an enormous protection to the Government and can not well be dispensed with, but the grade of acting assistant surgeon under existing law is inadequate to this purpose. It carries no allowances and only a small salary ($1,400 per annum) and does not offer sufficient inducement to excite even inquiry on the part of those who might otherwise give serious consideration to the naval service as a field for their professional careers.

As pointed out elsewhere, the army offers better inducements under the same conditions of service and this fact can not fail to operate to the serious disadvantage of the navy. The matter deserves prompt consideration by the department, for, as the regular corps now draws all the recruits from the grade, it has come to occupy a position of greater importance and bears a closer relation to the permanent establishment. No candidates are at present appointed acting assistant surgeons for the three-year term of service, as was the case in the past, though two officers holding old appointments, which expired in January, 1909, were temporarily reappointed, owing to the exigencies of the service, which had held them at their respective stations beyond an allowance of time necessary to reach home before discharge; the reappointments were properly issued to protect them against what would otherwise have been an unjust financial loss. These appointments were promptly revoked upon their reported arrival home. The appointment of the one remaining officer serving as acting assistant surgeon under the old conditions expired in July and was not renewed. In 1906 and again in 1907 Congress passed a law which, in effect, waived the age disqualification of two of these acting assistant surgeons serving under old appointments, making them eligible in that respect for commission as assistant surgeon, but when ordered up for examination each failed to qualify physically. At the close of the fiscal year 1908 there were 14 in the grade, which was 11 short of the authorized strength. The number of vacancies has not fluctuated as markedly as in previous years, owing to the effect of the order of October 7, 1908, heretofore mentioned. There were 17 original appointments. Vacancies were created as follows: Nine were commissioned assistant surgeon prior to October 1, 1908, 2 were permitted to resign upon failing to qualify for commission as assistant surgeon after the course of instruction at the Naval Medical School, 5 successfully passed the required examination and were commissioned, and 1 died, leaving 14 in the grade at the close of the fiscal year 1909.

Eighty-three permits to take the examination for appointment were issued during the fiscal year 1909; 54 applicants were examined, which number includes an undetermined few to whom permits had been issued prior to July 1, 1908.

Table showing applicants examined for appointment as acting assistant surgeon in the navy from July 1, 1908, to June 30, 1909, and place of examination and result.

Where examined.	Total number examined.	Qualified.	Rejected physically.	Rejected professionally.	Withdrew.
Washington, D. C.	30	11	9	3	7
Mare Island, Cal.	2	0	0	0	2
Philadelphia, Pa.	6	1	1	0	4
New York, N. Y.	8	2	2	4	0
Chelsea, Mass.	7	3	3	0	1
Total	53	17	15	7	14

The five boards for the examination of applicants are located as follows: Washington, D. C. (this is the same board organized to examine for commission as assistant surgeon those who have been in attendance upon the course of instruction at the Naval Medical School), Mare Island, Cal., Philadelphia, Pa., New York, N. Y., and Chelsea, Mass., and composed of medical officers, all of whom have some other paramount duty. They are nevertheless in continuous session, so that candidates may be examined at any time throughout the year.

The law restricting the number of acting assistant surgeons to 25 limits appointments in any one year to that number and prevents the annual increase of the regular corps by a larger number, though more vacancies actually exist, and there is always the likelihood that through the failure of some to qualify for a regular commission the actual addition to the corps may be less than 25. As mentioned last year, there is need of some agreement on the part of acting assistant surgeons before being ordered to the Naval Medical School that, if they successfully pass the examination for appointment as assistant surgeons, they will serve at least a sufficient time thereafter (three years) to give the Government proper return for the benefits of the course of instruction which they have enjoyed under pay.

The announced policy of the bureau respecting the assignment of these officers prior to October 1 of each year (the date on which the Naval Medical School opens) has been observed during the past year as strictly as considerations of economy and the requirements of the service would permit. The majority, as heretofore, were detailed for duty at one or another of the hospitals where they would be under guidance and observation, but it was found necessary to temporarily employ a few members of the grade on recruiting duty and on other kinds of service. Only two performed sea duty. One of these was of the number serving under old appointments; the other, a newly appointed acting assistant surgeon, who was the only officer immediately available to sail with the *Celtic* upon her mission of mercy to Messina.

MEDICAL SCHOOL.

Shortly after the civil war Surgeon Pinkney pointed out the advisability of a school for the medical officers of the navy, but in his day the suggestion did not receive practical recognition. Surgeon-General Tryon entertained the same idea and put it into modest, though successful, operation as the "department of instruction" at the United States Naval Laboratory, Brooklyn, N. Y., in 1893. The outbreak of the Spanish-American war, however, immediately terminated the operation and finally the existence of the school at that place, and not until nearly ten years after the first effort to organize a course of training, considered so necessary to fit the young graduates from civil life for the navy, was the idea revived and given practical form.

The Naval Medical School, established in 1902, represents one of the first important and most effective steps taken by the present administration of the Medical Department of the navy toward a needed improvement in the Medical Corps and its development to meet the requirements of modern medical and sanitary practice. The foreseen usefulness of such an institution has found abundant verification in the succeeding years of its existence, and to-day its value to the service must stand unchallenged. Its rapid growth in every feature of equipment and instruction has been according to mature conception as to its purpose. It has been the object of constant attention by the bureau, and every branch of the service has reason to feel comforted by and proud of its accomplishments. The young medical officer must be acquainted with the character of his duties and the customs of the service and trained in the most advanced methods of professional procedure as applied under service conditions before entering upon his active career, so that he may be prepared to perform the duties of his office efficiently from the beginning. A knowledge of those special subjects which naval surgeons have need to know and those peculiar responsibilities which devolve upon them, constituting a most unremitting demand for professional alertness, can not be left to the chance of being acquired in a varied service. The amount of routine work to be done and the frequent emergencies throughout the service require broad, practical resourcefulness and ready capabilities, and it is such conscious control of knowledge, for its immediate practical application, that the school endeavors to develop in every officer so that he may be competent, not only in the care of medical or surgical cases, but in the management of threatened epidemics and all other sanitary problems.

The course of instruction to be followed is carefully projected well in advance of each session with this end in view. Those who for one reason or another are incapable of attaining this high standard of proficiency are dropped. In the main the curriculum was established early in the history of its development, and only such additions or modifications have been made as seemed to be desirable or were clearly indicated from time to time by the service needs. During the past year the subjects embraced were as follows: Military and naval surgery (including medico naval and military organization), naval and military hygiene, tropical medicine (didactic and laboratory), bacteriology and pathology, ophthalmology, medical zoology, psychiatry, national quarantine and disinfection, clinical and sanitary chemistry, medical aspect of recruiting, dental emergencies, duties of medical officers, regulations for the government of the navy, and military law as applied to the naval service, physical drills, including hospital corps manual, military discipline and signals, etc. This is representative of the course given during the winter session of six months to newly appointed assistant surgeons and acting assistant surgeons. Hereafter the classes will be composed entirely of acting assistant surgeons.

The school facilities are designed also to be of educational benefit to the older officers in the several grades of the corps, who from time to time are in need of opportunity for professional refreshment by uninterrupted study under the guidance of recognized experts in various branches of medical science, with particular reference to the latest advances, and to become familiar with the newest methods of laboratory technique by practical training. These officers are ordered to attend the regular spring session of the school, which extends over a period of about two months, the course differing essentially from that pursued during the winter session and being necessarily of smaller scope, though planned as nearly as possible to give the officers the greatest possible benefit within the time allotted in what to them constitutes the most important subjects. Many applications for the privilege of attending this course are continually being received in the bureau and the number of such are annually increasing, and while the bureau aims to give every surgeon and passed assistant surgeon the advantage of the course and desires to favorably consider every application for the same, it has thus far been impossible in any one year to spare more than a few from general service. The post-graduate class assembled last spring was the largest in the history of the school, yet the growing excess of applications over those it is found practicable to approve attest the extending appreciation among older officers of the value of the course, especially the laboratory features, in bringing them abreast of the times and, in general, promoting professional efficiency. A change has been determined upon in the organization of future spring classes with respect to the grades of those who may be regarded as ineligible. In other words, hereafter no assistant surgeon will be recommended for detail to the school as a student, the comparatively limited number of officers who can be spared each year to profit by the spring course being selected from among the members of the grades above assistant surgeon. The assistant surgeons, all of whom must have enjoyed the advantages of the more comprehensive course of the winter term just prior to their appointment, can in no wise be considered as entitled to the privilege of another course so early in their service, nor should the necessity for it be created by their brief service of three years. Moreover, their association in class with the older officers makes a heterogeneous organization in point of widely different requirements and seriously embarrasses the faculty in determining upon the character and scope of the course.

Another consideration which has influenced the bureau to adopt this stated policy is that involved in the question of according all assistant surgeons like opportunities to prepare for examination for promotion. It is of course impossible to anticipate that event by the benefits of a course of instruction in every case or even a large proportion, and it is manifestly unjust that a few should be given this advantage over others. There is undeniable need that every medical officer be given periodic opportunity to "brush up" professionally and get in practical touch with the latest diagnostic and therapeutic procedures. The older officers, by virtue of their longer service, represent this need most acutely, and it is not right that they should be deprived of due consideration in this respect, in order to bestow an overabundant consideration upon those less deserving of the solicitous interest of the bureau. It is estimated, basing the calculation upon the size of the class last spring, that by carrying out the above-outlined policy it will be possible to give every officer below the grade of medical inspector from the time he enters the service the benefit of a course of instruction at the Naval Medical School once in about every five or six years. This should be sufficiently often for the purpose of keeping all officers well abreast of medical advances, and it is believed that great good will accrue to the service from such a system. With this idea in mind, the spring course will be rearranged to include only those subjects of greatest importance and with a view to employing every hour of the short term of instruction to the utmost practical advantage.

Up to the present date 260 officers have been in attendance at one or the other courses of instruction since the establishment of the school.

Table showing classes and number of each.

	Number in classes (winter term).	Number in classes (spring term).
Session of—		
1902–3	12	
1903–4	31	
1904–5	23	14
1905–6	21	12
1906–7	28	13
1907–8	35	11
1908–9	39	21
Total	189	71

The school opened for the session of 1908–9 on October 1, 1908, and continued its work over a period of nine months, comprising a winter and spring term as heretofore, three weeks intervening as a necessary relief from the duties of instruction after the winter class was graduated and so that preparation could be made for the reception of the spring class. The winter term (about six months in length) was attended by a class of 39 officers, (32 assistant surgeons, and 7 acting assistant surgeons), which was the largest class in the history of the school. This term came to an end March 25, 1909. The spring term opened on April 15, 1909, and continued until June 12, 1909, covering a period of about two months. It was attended by a class of 21 officers, comprising 5 surgeons, 6 passed assistant surgeons, and 10 assistant surgeons. This was the largest of the spring classes.

Of the 39 student officers who were in attendance upon the winter course, all except 1 assistant surgeon made the required percentage in the final examination and received certificates of graduation. Five of this number, Asst. Surgs. J. R. Phelps, L. M. Schmidt, G. W. Shepard, J. G. Zeigler, and G. F. Clark, graduated with honor in the order named, having attained a percentage of 90 or above. The closing exercises were held on March 25. The certificates of graduation were presented by the honorable Secretary of the Navy, who afterwards made a short address, and the class was also addressed by Dr. W. S. Thayer, of Johns Hopkins University, and by the Surgeon-General of the Navy.

On September 10, 1908, Medical Director J. C. Boyd was detailed to relieve Medical Director J. C. Wise as officer in command and president of the faculty. No changes were made in the staff of instructors until the end of the winter term, when Surg. H. C. Curl was relieved by Surg. Raymond Spear. The discipline of the institution was excellent, and the student body as a whole was industrious and exhibited an appreciation of the course by a disposition to make the utmost of the opportunity. The instructors, without exception, discharged their duties earnestly and with ability, and the report of the officer in command and president of the faculty shows that the work accomplished was in keeping with the fine record of previous years. During both the winter and spring terms the courses of instruction were ably supplemented by lectures and demonstrations by distinguished members of the civil profession and other branches of the government service, to all of whom the school is deeply indebted. The regular lecture of Dr. William A. White on psychiatry at the Government Hospital for the Insane, and of Dr. C. W. Stiles on medical zoology at the school were special features of the course and occupied a prominent place in the curriculum. The bureau desires to express its appreciation of the interest manifested and the valuable time given by these two gentlemen in particular.

The curriculum of the school has been described in detail and discussed at length in previous reports. A short course of lectures on the medical aspect of recruiting was added, but otherwise only minor changes were made during the year. A systematic course of instruction of the Nurse Corps was commenced in the early part of October, 1908, but this will be reported in the section "Nurse Corps."

One other feature of training, added as an experiment during the year, was of the nature of a medical society composed of the officers of the class and conducted by a member of the faculty. The purpose in view was to give the young officers some practice in the preparation of medical papers and in extemporaneous discussions, for an ability in both these directions is eminently worth developing, as pointed out in the section "Factors of educational import * * * ." A symposium was held at the school every alternate week, papers prepared by two or three members on assigned subjects being read and discussed. In all this work the officer in charge advised and guided and criticised, and the interest shown throughout, together with the improvement observed at the last few meetings, justifies the belief that the idea is worth a further trial.

The work of the bacteriological and clinical laboratories of the school continues as heretofore to be of the utmost value to the Medical Department and the service as a whole. Aside from the important rôle they play in the course of instruction during both terms of the school, they are constantly employed in the examination of specimens sent in from ships and stations and hospitals and in carrying on investigations along lines of direct practical medico-naval interest. This useful function has been represented during the past year by considerable original work and by the simplification or adaptation of the technique of suggested laboratory methods to the conditions of naval service. This sort of work requires a great deal of patient research, scientific ability, and careful discrimination, none of which qualifications seem to have been lacking in the laboratory staff of the school. It now seems desirable from a study of considerations in respect to the relation of typhoid fever to the navy, as reported in the section "Special diseases," that steps should be taken to establish a separate laboratory at the Naval Medical School for the manufacture of antityphoid vaccine. This has already proved to be of such value among the preventive measures now applied to military organizations that the bureau is giving careful consideration to the question.

The following is a summary of the work done in the laboratories during the period from July 1, 1908, to June 30, 1909:

1. The laboratory instruction of two classes in chemistry, pathology, bacteriology, tropical medicine, and medical zoology.

2. The work called for in preparing apparatus, specimens, solutions, stains, and culture media, etc., required in connection with the above courses and also for the use of candidates for admission and promotion. This work alone consumes as much or more time than the courses of instruction.

3. The analysis or preparation and examination of some 1,762 specimens of various kinds which were received from a number of hospitals and other sources, exclusive of those to be used in connection with the courses of instruction.

The character and number of specimens examined are as follows:

(*a*) Pathological laboratory:

Kidney	16
Lung	8
Liver	11
Heart	3
Spleen	8
Mammary gland	2
Brain	3
Appendix	11
Prostate	1
Faucial pillars	1
Bone	1
Pancreas	5
Lymph gland	9
Tumor	8
Skin	4
Intestines	2
Adrenal	1
Blood	150

(*b*) Bacteriological laboratory:

Sputum	142
Fæces	92
Throat cultures	2
Milk	3
Urine	45
Blood	140
Pus cultures	15
Water	10

(*c*) Chemical laboratory:

Urine	1,070
Water (sanitary examination)	19
Fabric	1
Milk, fresh	2
Milk, condensed	1
Stomach contents	15

Post-mortem examinations were made of about 25 animals, chiefly guinea pigs, rats, and rabbits, which had been inoculated with bacteria or sera for experimental purposes. A large number of vaccines were also prepared for therapeutic purposes.

Educational considerations suggested by the year's experience.—This important subject has been given lengthy and detailed consideration by the bureau in its two preceding reports, and the department is respectfully referred to these for a more extensive discussion than it seems desirable or necessary to enter upon here. The information there given need only be supplemented by the narration of and comment upon the additional facilities provided and by a presentation of the bureau's observations during the past year. Suffice it to say with respect to the broad question of educational opportunities for medical officers that all the factors heretofore mentioned have continued to be potent influences in maintaining the medical corps in a state of professional virility. Indeed, this statement is rather short of the truth, the fact being that medical officers in general are showing increased enthusiasm in their work and are taking active part in the advance of medical sciences.

The progress of the profession in every component branch has developed the need of specialization, which in civil practice has met quick response, this tendency being fostered by the ready facilities for special study and stimulated by the reward, either professional or pecuniary, which awaits those who win distinction. But in the navy the same progress has only created a greater demand upon each individual member of the Medical Corps for a familiarity with the important advances along the different lines of medical science, and has not freed him in the least from the need of general knowledge. Specialization in its accepted sense and to the degree observed in civil practice is not possible in the navy, as every officer must be self-reliant and competent to perform any duty to which he may be assigned and to care for any medical or surgical condition that may be presented. This requirement can not be evaded either by the individual or the corps as a whole. On the other hand, the strong tendency toward specialization can not be entirely evaded, nor does the bureau entertain a disposition to do so, but stands prepared to facilitate, and is facilitating, such a development of those officers who show special and undoubted ability in certain lines to any reasonable extent consistent with the above-mentioned demand for general knowledge. It is appreciated that no man can feel that his limited human capacity is equal to the task of perfecting himself in every branch of medical science, and it therefore seems proper to give full recognition to the need for special ability in certain branches, such as the eye, ear, nose, and throat, surgery, tropical medicine, hygiene, genito-urinary diseases, tuberculosis, bacteriology, and clinical chemistry, and other laboratory work, etc. The busy general practitioner feels that he must have the aid of the most experienced microscopist and laboratory technicist to carry on his work with a consciousness of thoroughness in every detail of his responsibilities and to the best interest of his patients, and he must have access to experts in other branches of science.

So, in the navy, where the breadth of the field, as has been indicated, is so vast, the Medical Department is being forced to the practices of the age.

The spirit of the medical officers of the navy has changed wonderfully in the last eight or ten years, and with the educational provisions which the bureau has been able to make to help toward the fulfillment of their ambition they are meeting the requirements of modern medicine with creditable ability.

There is an increasing number of instances, such as reported in the past, of individual officers showing a sufficient initiative in their ambition for professional advancement to take up special courses at their own expense during leave or while performing duty at stations located in or adjacent to medical centers which offer facilities for post-graduate study and practical work in various subjects. The bureau is entirely cognizant of the fact that the number of those who are able to take advantage of such opportunities is but a small proportion of those who desire to do so. The spirit which this manifests must, of course, be a source of extreme gratification to all in the service who have needed or who may be in need of medical attention as it is to the bureau, whose concern is for the efficiency of the Medical Department; but it is regretted that so many officers should be obliged to conform to the imperative requirement that they shall not rust and fall behind and to fit themselves to meet the needs of the service in special direction at their own expense. It is hoped and believed that the new policy with respect to the spring course at the Naval Medical School, together with the additional facilities for post-graduate work which it has been possible to arrange, will in the future, at least partially, correct the conditions which have called upon officers for a personal outlay where the good of the service is the most vital concern.

Early in 1909 reciprocal arrangement was established with the New York Post-Graduate Medical School and Hospital whereby, in exchange for a course of lectures on naval sanitation and hygiene by a medical officer of the navy, complimentary tickets for the general course in that school would be issued, on application, to members of the Medical Corps of the Navy. Medical Inspector H. G. Beyer was selected for this special duty, and during the spring months delivered a course of six lectures. According to the understanding, therefore, the naval side of the contract has been fulfilled this year and the benefit of the course at that institution has been opened to all medical officers of the navy, and will continue so, provided there is a further demand for such a course of instruction on the part of the matriculates of that school. One officer took advantage of this opportunity before the close of the fiscal year.

The bureau desires to again emphasize the importance, from an educational point of view, which attaches to medical associations and their periodic meetings. It is unfortunate that circumstances have again prevented the delegation of a sufficient naval representation at these gatherings of medical men at various times and places, but in this direction also a number of officers have shown commendable interest and have attended upon their own initiative, the conditions making this possible being unknown to this office. It is hoped that in the future the exigencies of the service will be less of a restriction and that more officers may be available for formal detail to represent the navy at such medical congresses. The benefits accruing from participation in their proceedings are of material value and constitute a more than sufficient return for the comparatively trifling expense of sending delegates. While it is realized that most is derived from actual personal intercourse with men from various sections of the country and from other parts of the world, yet the bureau endeavors to give all medical officers some measure of the benefit by communicating the important information contained in the reports of proceedings through the medium of the United States Naval Medical Bulletin.

The medical congresses that have been held in this or other countries since the last report, the place of meetings, and the medical officers who have been detailed on the recommendation of the bureau to attend as representatives of the Medical Department of the Navy are as follows:

The International Congress on Tuberculosis, Washington, D. C., September 21 to October 12, 1908: Surg. Gen. P. M. Rixey, vice-president of section on surgery and orthopedics; Medical Inspector H. G. Beyer, chairman of committee on exhibits; Surg. E. R. Stitt, navy member of general executive committee; Surg. B. L. Wright, special delegate to represent the navy in respect to the work being carried on at the Naval Hospital, Las Animas, Colo.

American Pharmaceutical Association, Hot Springs, Ark., September 7–12, 1908: Pharmacist Alrik Hammar, U. S. Navy, delegate.

Seventeenth annual meeting of the Association of Military Surgeons of the United States, Atlanta, Ga., October 13–16, 1908: Surg. Gen. P. M. Rixey, Medical Directors J. C. Wise and M. H. Simons, U. S. Navy, delegates.

Fourteenth annual meeting of the Northeastern Dental Association, Hartford, Conn., October 21–23, 1908: Richard Grady, D. D. S., M. D., resident dental surgeon, U. S. Naval Academy, delegate.

Annual conference of the committee on medical legislation of the American Medical Association, Washington, D. C., April 10, 1909: Surgs. E. R. Stitt and J. S. Butler and Passed Asst. Surg. O. J. Mink, U. S. Navy, delegates.

Tenth annual meeting of the American Medical Association, Atlantic City, N. J., June 8–11, 1909: Surg. M. F. Gates, U. S. Navy, delegate.

The fifth annual conference of the Council on Medical Education of the American Medical Association met in Chicago, Ill., on April 5, 1909, but it was impractical to delegate an officer to represent the

Medical Department of the Navy in this conference, as just at this time a change was being effected in the detail to duty at the naval recruiting station, Chicago, Ill.

The Pan-American Medical Congress met in Guatemala City, Guatemala, Central America, on August 6–10, 1908, but it was also impossible to send a delegate to this congress, as no medical officer could be spared for the duty.

At the seventeenth annual meeting of the Association of Military Surgeons of the United States, above mentioned, the Surgeon-General of the Navy was elected president of this association for the ensuing year.

It was in deference to the acknowledged value of personal professional intercourse through the agency of periodic gatherings of medical men that the bureau inaugurated the hitherto-mentioned series of symposia at the Naval Medical School last year in the hope that it would awaken an appreciation of their value by actual experience and indirectly lead to a more frequent gathering of the medical officers of the fleet as a body for discussion. It is worthy of observation in this connection that no professional hermit ever developed a latent genius or contributed anything really worth while to mankind; nor is success given to him who neglects his powers and never comes out in the open to exchange ideas or report observations, but is content to follow and simply know what others are doing.

The medical officers of the Atlantic Fleet were the recipients of professional as well as social courtesies during the long cruise, the medical profession at nearly all the ports visited, at home and abroad, extending the most cordial hospitality. All invitations to visit hospitals, laboratories, sanitoria, etc., were availed of as largely as possible by the different medical officers, greatly to their interest and benefit.

Among the medical periodicals furnished to medical officers of the service as reported last year, the United States Naval Medical Bulletin has come to assume a position of the utmost importance, even though by virtue of its comparatively short existence it has not yet fully developed to its highest rôle of usefulness along educational lines. Medical literature in general may be said to represent the nourishment indispensable to the maintenance and growth of efficiency, especially among those more or less isolated from more than occasional contact with their colleagues, as is the case with medical officers of the navy, for whom the bulletin is filling a long-felt need—not only as a means of obtaining information particularly pertinent to the service and applicable under service conditions, but as a means of communicating such information obtained as the results of original work and observation, or otherwise, from individuals in the Medical Corps, for the benefit of fellow-officers in their supervision of the physical welfare of the whole naval force. To have conceived an idea, to have made an observation or discovery, to have conducted an investigation, to have come out victorious in the fight for a life, is the fulfillment of but half the doctor's obligation to science and humanity. It is a moral and ethical requirement that he give any new knowledge to the world, even though it concern but a seemingly insignificant matter. Life and everything that pertains to it is made up of little things, and of these the small truths are the most important. This is the statement of a commonplace, and yet it expresses that which few actively appreciate. No one can afford to neglect the slightest hint in conception or observation, for it is frequently found that facts which seem to be of the least moment are the most fruitful in guiding to really epoch-making lines of work.

Nothing engenders and develops and perfects ideas so much as discussion or their preparation for publication, and he who neglects his abilities in that direction is abandoning his heritage and resigning his legitimate position in the culture and enlightenment of the medical world. One might just as well tie his right arm and let it wither in disuse. All must enter into the conflict of ideas pressing for establishment, and strive to take their place in the vanguard of progress. It is a gratification to the bureau that the medical officers of the service are showing an increasing realization that their standing and usefulness in their profession depends not alone upon an ability to actually cure disease, but, through the opening which the bulletin offers, are imparting ideas, observations, and discoveries, both for the benefit of humanity and that their colleagues may profit by their experiences and studies. Many valuable special articles and reports by medical officers in different parts of the service have been received and published in the bulletin, and others have appeared from time to time in the civil medical press. Moreover, two officers have undertaken the preparation of books (one, by Surg. E. R. Stitt, and the other, by Medical Inspector J. D. Gatewood, now published) which can not fail to be of great professional value to medical officers of the navy and others as well.

HOSPITAL CORPS.

During the past year the Hospital Corps has, in numerical strength and general efficiency, improved steadily. With a few exceptional instances, it has been possible to meet the routine demands for men as regards number, but there is still much to be desired to make for thorough efficiency in the matter of experienced and trained men. This defect is due largely to the fact that men in the rating of hospital apprentice, first class, do not reenlist to any extent after their first enlistment, and this state of affairs can not be expected to improve until proper legislative measures are taken to effect a remedy. This phase of the question will be more fully discussed in a subsequent paragraph. The numerical increase in the corps during the year, as a result of original enlistments, may be ascribed to the same causes which have stimulated recruiting generally for the service, together with the cooperation of the Bureau of Navigation in all suggestions relating to the subject made by this bureau.

The following table shows the enlisted strength of the corps July 1, 1909:

Hospital stewards	264
Hospital apprentices, first class	379
Hospital apprentices	415
Total	1,058

The promotions from hospital apprentice to hospital apprentice, first class, were 131, and the promotions from hospital apprentice, first class, to hospital steward were 32.

Careful and very conservative estimates made during the year show the requirements as regards numbers to be as follows:

	Hospital stewards.	Hospital apprentices, first class.	Hospital apprentices.	Total.
Hospitals	87	230	158	475
Other shore stations	74	79	33	186
Ships in commission	85	110	200	395
Hospital ships	8	28	27	63
Class under instruction	0	0	50	50
Recruiting	15	10	0	25
Total	269	457	468	1,194

These figures give a force which will meet requirements under normal conditions, but allows little margin for emergencies. It is believed that the enlisted strength of the Hospital Corps should be 3 per cent, or about 1,335 men, of the enlisted force of the navy when fully recruited. Including the Marine Corps and, probably, 1,000 prisoners, this force would be equivalent to about 2.4 per cent of the entire complement for which the Hospital Corps provides. In addition, there should be a relative increase in the warrant grade, now consisting of 25 pharmacists, which would be provided by the gradual promotion of pharmacists to the grade of chief pharmacist, under the same conditions as pertain to other warrant officers, when that grade is established by act of Congress.

For some time the bureau has given thought to the employment of pharmacists in a line of work particularly adapted to their fundamental training, which would at the same time meet one of the existing needs of the service. At the present time the provisions for examination of foods, water, and other substances which may require analysis, at a naval hospital or in a fleet, are entirely inadequate, and it is becoming more and more imperative that such work should be done at every hospital and in every fleet to effectively safeguard the health of the personnel. The medical officers of a fleet can not, in addition to their regular professional work, undertake to pass critical judgment on foods and water unless they have the support of an analysis done by a person who has the time and special training for such duty. Work of this nature, however, requires special supplementary technical and theoretical knowledge not obtainable under ordinary service conditions. In order to provide such instruction the bureau is particularly solicitous that the number in the warrant grade of the Hospital Corps be increased so that certain specially fitted pharmacists may be detailed for a period of instruction at the Naval Medical School in methods of analysis and in attendance at other government institutions in Washington where such facilities are available.

As indicated above and in the report for the preceding year, the work of the Medical Department ashore and afloat has broadened materially in scope, demanding a larger force and better professional equipment on the part of men of this corps. For these reasons the complement of the Hospital Corps on ships of the first class has been increased by two hospital apprentices, making the complement: One hospital steward, 2 hospital apprentices, first class, and 4 hospital apprentices. From reports so far received it is apparent that this number is no more than sufficient for the work, and it is believed that the large ships now under construction, which will carry over 1,000 persons, will require a larger force to properly carry on the work. Flag ships should carry a pharmacist if the number in that grade would permit of such assignments. This will, however, not be possible unless an increase is obtained.

To promote harmony and efficiency, the bureau has during the past year adopted certain policies as the result of issues arising from time to time. An effort has been made to make a fair and equable distribution of sea and shore service whereby men may alternate in a more or less regular manner between duty in hospitals and on board ship, with a view to fostering the contentment of the individuals and to promoting greater versatility in the work of the personnel.

In the matter of examinations for permanent appointments as chief petty officers, it was found that those hospital stewards doing duty on detached service, where but one medical officer is stationed, were either barred from examination under the regulations governing this point (with a consequent loss to them of pay to which they might be legally entitled), or would have to be transferred, sometimes at considerable expense to the Government, to a place where a suitable board could be convened. To overcome these objections the bureau has devised a method whereby such men may be examined by means of a set of sealed questions prepared in the bureau. This method has so far worked well, a number having so qualified, while a few have failed to make a creditable showing.

On several occasions the question of the appointment of men of the Hospital Corps as mail clerks on ships has arisen. To these appointments the bureau is distinctly opposed for the reason that such work would entail the frequent absence of the man from the ship when the necessity for his services in the care of the sick might be more imperative than the care of mail. The two duties are, by their very nature, incompatible.

It is a matter of deep satisfaction to the bureau to state that in so far as the limitations of existing law will permit a corps of men has been trained and organized since the establishment of the Hospital Corps in 1898 which in bearing, efficiency, and zeal compares favorably with any similar organization. Testimony to this effect was officially given by Maj. Charles Willcox, Medical Corps, U. S. Army, reporting on the work of the Naval Hospital Corps with the army of pacification in Cuba; by Asst. Surg. M. Donelson, U. S. Navy, reporting on the relief work at Messina; and by Asst. Surg. J. T. Miller, U. S. Navy, in his report on the relief given to the victims of the Armenian massacres at Adana, Turkey in Asia. The bureau, however, looks forward to future needs and again desires to express the earnest hope that no more time will be lost in putting this corps in all respects exactly on the same footing as other branches of the service. The care of sick and wounded by competent men is now universally recognized as a matter of utmost importance to a military organization, and the varied and specialized work involved, together with the technical training required, clearly put the individuals of the corps on a level professionally and in every other respect with corresponding classes of workers in the other branches. There is no good reason why discrimination should be made as regards the Hospital Corps in matters of promotion and reward for long and faithful service, nor is it wise, for economical reasons, to withhold these inducements and thereby lose valuable men who, otherwise, would remain in the service. The bureau regrets exceedingly that the grade of chief pharmacist was not incorporated in the legislative act which established the grade of chief machinist, enacted in March, 1909. In the representations made to Congress in behalf of warrant machinists, the statement was made that they were the only warrant officers at that time not eligible to the chief grade. This was clearly an error which did great injustice to the pharmacists, and prompt and forceful steps should be taken to correct the misapprehension thus created. As the law now stands, pharmacists are the only warrant officers to whom the chief grade has not been opened, although the law creating pharmacists warrant officers antedates that which established the grade of warrant machinist.

The bill, H. R. 6184 and S. 1017, introduced during the special session of Congress embodies provisions for the establishment of the grade of chief pharmacist and the intermediate ratings in the enlisted branch between the existing hospital apprentice, first class (petty officer, third class), and hospital steward (chief petty officer). This will open the ratings of first and second class petty officer, whereby promotion to the rating of hospital steward will be made more gradual and be a means of retaining trained men in the service who are not now content to serve indefinitely as hospital apprentices, first class, and to whom promotion to hospital steward seems hopeless. Such men as these are valuable as leading men and should be held in the service. Under existing conditions this is impossible, as indicated by the very few reenlistments in this rating.

In the annual report for the preceding year exhaustive details in explanation of the reasons for the urgency of this legislation were given. The facts then stated still hold true, and the department's active support looking to the early enactment of this measure is earnestly recommended.

HOSPITAL CORPS TRAINING SCHOOL.

During the year ending June 30, 1909, two classes, one consisting of 24 men and the other of 39 men, received the full course of instruction, and a third class, consisting of 47 men, was in session at the close of the fiscal year 1909.

The plan of selecting men who show special adaptability for the work of the Hospital Corps has been put in practice in the formation of recent classes, and the results so far obtained are an improvement over former conditions. Unfortunately, however, in spite of the Bureau's care, undesirable men have crept in as a result of an erroneous conception of the functions of the school on the part of certain medical officers who recommended them, or approved their applications. The school is in no sense a disciplinary institution, and men who are in need of discipline have no place there. It is an institution for developing the well-behaved, apt, and ambitious young men, and this principle should be the controlling idea in selecting men. Such men as have proved themselves unfit have, after a reasonable period of trial and observation, been recommended for discharge from the service.

The curriculum was in essentials similar to that outlined in the report for the preceding year, with some slight modification; a drill platform, hospital tent, and a splint stretcher having been added to the equipment. The drill platform represents a section of the deck of a man-of-war, with ladder and hatch, and is used in drilling the men in transportation of wounded. The tent is the regulation hospital tent and the men are drilled in pitching and striking.

The old Naval Hospital, Ninth and E streets SE., Washington, in which the school is now located, is not in all respects suited to the purposes of a school of this nature. While the class rooms and living quarters for the men are in themselves healthy and fairly well adapted to the requirements, the lack of grounds about the building for exercise and drill is a serious drawback. Moreover, the close proximity of the streets and dwellings near by afford opportunities for mischief, which young men naturally do not overlook, and thus, often inadvertently, involve themselves in trouble and bring the uniform into disrepute. The experience of the past year has shown that a location affording better segregation, as well as a ground space for recreation out of school hours, should be found. As indicated in the report for 1908, the present location is satisfactory only as a temporary expedient, and it is the intention of the bureau that the school shall ultimately be located in the grounds of the Naval Medical School Hospital, Twenty-fourth and E streets NW., Washington, where the objectionable features of the present location would be eliminated and better facilities for maintaining discipline are at hand.

The Hospital Corps Training School was first opened in September, 1902. In all, 17 classes, comprising a total of 653 men, have been assembled and given the course of training. The bureau is much pleased to state that, of this number, 329 men, or a trifle over 50 per cent, are at present in the service. This speaks eloquently for the value of the school as a means of retaining men and indicates that the Government is profiting well by the money expended in this form of education.

These figures and the general improvement in the work of the corps as a result of this training have prompted the bureau to consider extending the curriculum to cover a period of five months to permit instruction in pharmacy, and steps to this end have already been taken.

NURSE CORPS.

In the bureau's report for the fiscal year 1908, the authorization of the corps was reported and plans for its gradual careful development were outlined. The appointment of the superintendent of nurses had been made, regulations and rules had been promulgated, and preliminary steps looking to organization had been taken. Since July 1, 1908, much has been accomplished toward a substantial, though slow, growth in the corps and its establishment in relation to the service. In the comparatively brief time which has elapsed for testing the applicability of the regulations and rules as originally drafted, observation shows them to be, in the main, practicable and all that is necessary for the discipline and efficient conduct of the corps. They were fashioned after the regulations and rules for the government of the Nurse Corps (female) of the United States Army, with such modification as, in the exercise of discriminating foresight, seemed desirable at the time to adapt them to the peculiarities of the naval service. As was perhaps to be expected, experience has demonstrated certain minor defects, to be mentioned below, which will have to be corrected in the near future. These will be made the subject of special recommendation to the department.

The corps now numbers 1 superintendent, 4 chief nurses, and 32 nurses, distributed as follows:

The superintendent is attached to the Bureau of Medicine and Surgery, though her office is at the Naval Medical School, and has charge of all that pertains to the corps as a separate division of the bureau's work.

One chief nurse and 6 nurses are serving at the Naval Medical School Hospital, Washington, D. C.; 1 chief nurse and 6 nurses are serving at the Naval Hospital, Norfolk, Va.; 1 chief nurse and 7 nurses are serving at the Naval Hospital, New York, N. Y.; and 1 chief nurse and 3 nurses are serving at the Naval Hospital, Annapolis, Md.

The health of the corps has been excellent, and thus far there has been but one case of serious illness.

In accordance with the stated policy of the bureau, the utmost precaution has been exercised in recruiting the corps, and the results of careful selection are apparent in the standard of services which the navy is enjoying. All reports that have reached this office concerning the character, conduct, and work of the nurses have been of an eminently satisfactory nature. All of the nurses have adapted themselves to the change of environment and to the conditions of military nursing without difficulty, have displayed tact and good judgment in dealing with the male personnel of the nursing staff in hospitals—members of the Hospital Corps—and have performed their work with exemplary fidelity and efficiency. The chief nurses have discharged the supervising duties with tact and ability. They have been successful in maintaining a high order of discipline in particular and in making for good results in general.

After the year's experience the bureau is convinced that the policy of bringing all new nurses to Washington, where they are held under instruction and observation for a few months before being assigned to the different hospitals, is as advantageous in practice as in theory. The many advantages of a first-hand estimate of each individual nurse as she enters the service can not be too strongly emphasized, and this is the only way in which the head of the corps and the bureau can have that desirable opportunity to judge her general fitness. For this purpose accessions to the corps have, as far as possible, been made in groups, though of late applicants of the required type have been so few and scattered that the plan of holding examinations at widely separated periods with the idea of increasing the corps by classes has been temporarily abandoned to the necessity of acquiring nurses of the best type from time to time as they become available. Each one is nevertheless ordered to Washington for practical and didactic training in the requirements of the navy until adjusted to military conditions and otherwise prepared to take up the duties in general service at hospitals to which assignment will continue to be made as in the past, according to their comparative importance in respect to character and extent of work.

A course of systematic instruction of the Nurse Corps was commenced in the early part of October, 1908, and completed in March, 1909. It consisted of demonstrations and lectures on nursing and service conditions both at home and abroad, care of the sick on hospital ships, nursing of tropical diseases, naval hygiene and sanitation, requirements of hospitals and hospital ships, first aid and emergencies, bacteriology of the air and skin in relation to surgical cleanliness, methods of sterilization, etc. This instruction was supplemented by practical work in dispensary and laboratory and was further supplemented by a course of lectures by the superintendent of the Nurse Corps on the subjects of military nursing, ethics and etiquette, etc., with a view to making the organization more adaptable to the needs of the naval service and to preparing the members of the corps for professional intercourse and cooperation with the army nurses and nurses of other countries with whom they might be brought in contact.

In the above-outlined course of instruction it was the bureau's aim to reinforce, where most necessary, the usual course of instruction given the pupils in the average school of nursing, and to give the members of the corps opportunity to bring up and discuss problems of nursing with respect to the peculiar requirements of the navy.

In general such a period of training is vitally concerned with the efficiency of the corps, and the best interests of all depend upon the utmost advantage being taken of the period over which the course extends.

The purpose of the bureau respecting the service of nurses as pointed out last year is, in general, that they shall have charge of the various wards in hospitals and on hospital ships if in sufficient number to make this practicable; that they shall care for special cases and those of particularly serious nature; and that they shall instruct the apprentices of the Hospital Corps so that when ordered to sea or to outlying stations they will be able to carry out their duties efficiently. It is to be understood in this connection that there are to be comparatively few nurses at each hospital and that their presence does not detract in the slightest from the importance of the work of the Hospital Corps. The example alone which nurses may show will be of the utmost importance toward increasing the competency of hospital apprentices and making their services of more value, not only in independent duty, but at the hospitals in conjunction with the nurses.

It may be well to here quote what the bureau said last year with reference to this matter.

> Yet from this high estimate of the beneficent results which will attend the services of this new corps, it must not be construed that the bureau regards the services of the Hospital Corps as of any less importance and value than it has been in the past. The Hospital Corps, by this innovation, has not lost one iota of its earned prestige, and the plans for its development and improvement will be pushed without interruption.
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> The sphere of activity of women nurses is of necessity limited in the naval service to hospitals and hospital ships, and when it is considered that far and away the largest part of the naval force will fall under the care of the Hospital Corps, the demand for thoroughly well-trained male nurses and sick attendants of assured good character is most evident. The corps of female nurses merely furnishes the Medical Department that additional means for the proper care of the sick and injured which has long been needed without detracting from established organization.

During the fiscal year 1909, 557 written requests for information in regard to the Navy Nurse Corps have been received and answered, and a large number of circulars have been sent out to superintendents of training schools and registries for nurses, etc. The response, it is regretted, has been extremely small, as, all told, but 116 actual applications have been received. Of these, 36 have already been examined and appointed, leaving 80 still on file, of which two have been summoned for early examination, and one has already been examined, and will be free to accept appointment in the fall. Of the remaining 77, scarcely one is eligible or available for the following several reasons:

Graduates of correspondence or short-course schools	3
Can not meet requirements in regard to state registration	5
Have declined to take examination when summoned	20
Under age	6
Over age	3
Physically disqualified	8
Failed to qualify professionally	2
Undesirable on account of previous nursing record	8
Total	55

The balance (22) not accounted for in the above table belong to the class of unavailable for various causes. Some make application only for the position of superintendent or chief nurse or for service at some one particular hospital; several from distant points state their inability to meet the expense of traveling to Washington to take examination; others come from hospitals for women and children and have received no training in the care of male patients, or from institutions for the treatment of some one or two special diseases; and still others have declined to agree to the three-year term of service demanded.

Although provision is made in the Regulations and Instructions for the Nurse Corps, U. S. Navy, that candidates, after satisfying the requirements as to physical, moral, and professional qualifications, may be given their mental examination elsewhere than in Washington, it is deemed desirable to avoid this procedure until the necessity arises. The personal element is an important factor of the make-up of a nurse for the peculiar needs of the naval service, and this is best determined by the trained insight of one such as the superintendent of the corps, who is familiar with conditions in the nursing world and who is accustomed to estimating the character of those of her sex in the profession.

The above facts, showing the difficulties which have attended the effort to recruit the corps, indicate that the inducements offered for naval service are not sufficient to attract the required number from the representative schools, and yet as the members of the Nurse Corps are intended largely for the care of serious cases and for purposes of instruction, it is necessary that only those of the highest type professionally, as well as mentally and morally, shall be accepted for the service. Such women are not easily secured and are always in demand for positions of responsibility in civil hospitals, where the rate of pay for this class of work is usually from $50 to $100 per month, with table and laundry expenses in addition. A comparison of the financial condition as between those in civil service and those in military service must undoubtedly be considered the most important factor in explanation of the dearth of suitable applicants for the navy. The army is experiencing a similar difficulty in obtaining suitable nurses, and it is the opinion of the Surgeon-General of the Army and of this bureau that the present pay is inadequate and should be increased. It is therefore recommended that the pay of all nurses be increased to a minimum sum of $50 per month when on duty in the United States; that all nurses be allowed a longevity increase of pay at the rate of $5 per month for each period of five years' service, such pay, with increases, not to exceed $65 per month; that $10 per month additional to the rates above stated shall be paid all nurses when serving on hospital or ambulance ships or at stations beyond the continental limits of the United States; that the pay of nurses while serving under assignment as chief nurses may be increased by authority of the Secretary of the Navy not to exceed $30 per month; and that some proper provision be made for the supply of fuel and light in addition to the present allowances, and for allowance for quarters for the superintendent. Other propositions with regard to emoluments, privileges, and position have been submitted to this office, but they are all matters requiring careful consideration and will not be made the subject of any recommendation at this time. It will be well enough and a more propitious time to suggest changes in these respects when the value of the corps has been more fully demonstrated. The suggested increase of pay, however, is believed necessary at this time in order that the present high character of the corps may be maintained.

The regulation denying the right of officers' and enlisted men's families to the services of navy nurses is perhaps not sufficiently explicit. Under no circumstances will the Surgeon-General approve such services except in cases of actual emergency and in places where other nurses are not obtainable. With reference to the last sentence of the paragraph which provides for instances requiring action in advance of the approval of the Surgeon-General, it is to be understood that such services will only be allowed until another nurse can be procured. This attitude in the matter may seem unreasonable to those unacquainted with the conditions, but aside from the doubtful ethics of the practice, which has been the source of a great deal of discontent and trouble in the army, it is made necessary by the small size of the corps and its indispensable function in the hospitals of the service. It is absolutely necessary for the chief nurse to know exactly how many nurses she can depend upon for the work to be done, and to send one or two out at a moment's notice disorganizes the entire routine of the hospital. For this reason more than any other the system once in vogue of supplying nurses to the public from a hospital staff was discontinued many years ago in civil hospitals. The efficient administration of a hospital to-day, as that of other institutions, depends so largely upon the accurate adjustment of its component parts that anything which tends to disorganize one of these parts is sure to be widely felt and entail far-reaching consequences.

The women nurses in Washington are at present occupying two rented houses on Twenty-first street, their mess being entirely separate from that of the hospital. Permanent quarters are under process of construction on the grounds of the Naval Medical School Hospital. At Brooklyn it has been necessary to quarter the nurses in the hospital until the completion of the additions and repairs, now underway, upon the quarters assigned to them. As no quarters were available at Norfolk, several rooms and baths were rented at the Waverly Apartment in Portsmouth, and the nurses are subsisted at the café in the same building. The nurses at Annapolis are boarding in the town, as it was not deemed expedient to rent a house for such a small number. Reference to the nurses' quarters which are in process of construction, or projected for the future, at hospitals will be made in the section "New construction * * *."

DENTISTS FOR THE NAVY.

The bureau was again disappointed and the pressing need of the service in respect to that great source of disability represented by the teeth still remains neglected by the failure of the Sixtieth Congress to make legislative provision for the appointment of dental surgeons to serve the officers and enlisted men of the Navy and Marine Corps. The efforts of the bureau, consistently indorsed by the department and supported by the dental profession, to secure organization for such an additional resource in the proper care of the sick and the maintenance of a high standard of physical efficiency in the navy have extended over a period of eight years and embrace a long list of convincing arguments. The needs of the service at the time the original proposition for dental surgeons was made were sufficiently patent and important to have lead to immediate congressional action in the matter. Since then each succeeding year has furnished additional evidence of the urgency of the provision sought and the bureau has pressed the matter with corresponding energy. As a matter of fact every proper effort has been made to secure favorable action by Congress in this matter, and if the bill (S. 4261) drafted by the bureau and approved by the department had been permitted to come to a vote in the Senate, it would have become law, as indicated by the attitude of the House in passing the measure (H. R. 16620) on January 6, 1908.

As finally amended the bill provided that the 30 dental surgeons which it contemplated were at first to be appointed with rank of acting assistant surgeon, but that after a probationary period of three years from the date of their original appointment they were, if mentally, morally, professionally, and physically qualified, to become eligible for reappointment as dental surgeons in the United States Navy with the rank of assistant surgeons. The clause embodying this proviso was deemed advisable on account of the qualification respecting the age limits of candidates imposed by the bill which seemed to complicate the question of reappointment and made it probable that a certain number, depending upon their age when first appointed, would be restricted to a period of from three to nine years' service. The bill as it now reads insures the possibility of continuous service, and furthermore is a means of according to the dental profession that measure of recognition to which, by virtue of its standing, it is clearly entitled. In this form, and with this idea in view, this bill was entirely acceptable to the dental profession. It was not, however, all that the dental profession would have preferred, but represented all that the bureau was willing to concede and all, at least for the present, that could rightfully be asked for, from whatever consideration. Those interested see the matter in this light, and to-day are disposed to cooperate with the bureau in a further effort along this line. The dental fraternity throughout the country has long contended that the contract service in the army as the only opening to the young men of the profession is not, either officially or socially, sufficiently attractive to those of proper spirit and legitimate pride in their profession, and that it does not conduce to the best interests of the army, where, as in the navy, superior professional skill and a high degree of efficiency are acknowledged to be especially desirable. A comparable unsatisfactory state of affairs, it is pointed out, would be experienced by the navy should legislation restrict dental representation to employment under appointment for short periods of time with the rank and subject to the conditions of acting assistant surgeons.

This grade does not confer indefinite tenure of office and corresponds in other particulars with the contract service of the army, and it is maintained that "a commissioned status with a reasonable number of grades is absolutely necessary to induce the better class of dental surgeons to enter and remain in the service." This view point is argued at length from its various aspects, emphasis being laid upon a large responsibility, which, it is assumed, does or would rest upon dental surgeons, and the need, therefore, that their status be defined on a military basis by commission. In view of the similarity of the army and the navy with respect to the questions here involved it may be well to say that the medical departments of these services are in thorough accord as to their plea for commissioned status. That this is desirable, after proving their eligibility as provided in the several bills, in order that they may enjoy a permanency of office, adequate pay and emoluments, and a certain dignity of position, is undisputed, but that it is essential to the dental surgeon for the proper performance of his work has not been demonstrated either by experience or by the great mass of "argument" which has been offered. There is no occasion to enter here upon an exposition of the comparative importance of the duties devolving upon medical officers and those that would pertain to dentists in the navy, to show the absurdity of all claims for commissioned rank in the several grades necessary for the administration of the large and complex organization of the Medical Department. Dental surgeons would constitute an integral part, but only a small part, of this establishment, and while their services are essential and would be important as far as they went, the bureau is of the firm opinion that every reasonable requirement will be gratified by the proposed bill which gives to dental surgeons, after a preliminary service of three years, a commission as such with the rank of assistant surgeon. Such a commission would carry the like pay and allowances, including the right of commutation of quarters where not furnished in kind, allowances for fuel and light, increase of pay for length of service and the privilege of retirement for disability or age, etc. A bill making corresponding provisions has been introduced in behalf of the army for the purpose of improving the status and efficiency of dental surgeons in the United States Army.

The navy bill will accomplish everything necessary to make the service attractive to young men of ability and, as said before, the dental profession at large is, or should be, content with its provisions. The bill, which was amended last year as above stated, has already been introduced to both branches of the legislative body in the Sixty-first Congress (S. 1015 and H. R. 6741) and awaits its action at a regular session.

It appears, however, from the wording of this bill now before Congress that the office of dentist to the Naval Academy would not benefit by its provisions on account of the age of the present incumbent. The bill merely provides "that the dentist now employed at the Naval Academy shall not be displaced by the operation of this act." Yet it would seem, from a consideration of all facts, that some relief is in equity unmistakably indicated, both as regards an increase of pay and emoluments and provision for assistance in the performance of the arduous duties of this station.

Since the appointment of Dr. Richard Grady to this office in November, 1899, after passing a competitive examination with distinction, the demands upon his professional services have increased enormously by virtue of the growth of the institution, yet, throughout the succeeding years of his service, he has devoted himself indefatigably and zealously to his duties, performing them single-handed and, in spite of exhausting hours, according to the highest standard of efficiency. Moreover, the system of keeping individual dental records and the instruction of the midshipmen in the care of the mouth and teeth, especially in preventive measures, has greatly augmented his work. In addition, he has contributed an important part in the course of instruction at the Naval Medical School, delivering a series of lectures on dental emergencies, before the annual class of student officers, for their guidance in the management of such dental diseases as may come under their care on board ship and at isolated stations.

Whether or not Congress ultimately authorizes the appointment of dental surgeons in the navy, there will always be need for an acquaintance with dental emergency work on the part of medical officers, and thus much may be done toward giving temporary relief. All these various duties have been faithfully and conscientiously performed without complaint as to the work, but for the past few years he has contended, on the ground of justice, and has the support of others in the contention, for an increase of pay commensurate with the extent and character of his professional services. They have been and are of great value to the service. He is eminently deserving of and entitled to the favorable consideration of Congress on the sole account of the work attached to the office, but when the matter is considered in relation to the compensation of and provision for similar work at the Military Academy, the necessity for relief becomes more apparent. The work is continuous practically throughout the year and has increased so greatly that to keep the teeth of the midshipmen in proper condition—not to mention other duties—requires a degree of labor and time beyond the endurance of a single individual to accomplish. The Department has been made acquainted with the detailed facts in the case through official correspondence. The bureau believes that the incumbent of this office should not be made the subject of independent legislation, but should be looked upon as a prospective member of the contemplated body of naval dental surgeons, with the allowance for age, length of service, and tried ability, and it is recommended that the bill in question be amended by a clause to this effect.

With the exception of this single case, the large amount of dental work which is required throughout the naval service is being done under most unsatisfactory conditions and even then only in small part by enlisted men of the Hospital Corps. The regrettable features of this makeshift have been clearly presented in prison reports, as has also the great need for more adequate and efficient dental services. It should not be necessary to even briefly review the arguments. These, it is confidently believed, are familiar to all. Suffice it to show the increased amount of recorded dental disease in the navy that was given attention during the year. The following tables take no account of the amount and character of work performed by civilian dentists other than the one who has been attending at the Philadelphia Navy-Yard and at the naval station, Olongapo. The first table represents the work done by the dentists at the Naval Academy and the second that done by one medical officer, one private marine, and the several members of the Hospital Corps detailed for such work. With reference to the work done by the latter, reports have come in from the *Wabash*, *Hancock*, *Franklin*, *Relief*, *Vermont*, *West Virginia*, *Tacoma*, training station (Newport), and naval station (Olongapo).

The regulations of the Academy require that "Midshipmen shall have their teeth examined and attended to by the dentist in each academic year." Only 19 of the midshipmen in the Academy during 1908 (less than 2 per cent) had not received dental treatment prior to entrance or since. The number of midshipmen in 1908 was 1,075—849 on roll January 1 and 226 admitted in June.

The following table illustrates the character of work done for midshipmen during 1908—dental operations, cases treated, etc.:

Table showing dental diseases, treatments, and operations for 1908, reported from the Naval Academy.

Midshipmen	1,057
Visits (sittings)	2,499
Gold fillings inserted in teeth (in simple cavities, 92; in compound cavities, 36)	128
Amalgam fillings inserted in teeth (in simple cavities, 310; in compound cavities, 222)	532
Porcelain fillings (in simple cavities, 18; in compound cavities, 6)	24
Gold inlays (in simple cavities, 3; in compound cavities, 4)	7
Gutta-percha fillings	21
Cement fillings (in simple cavities, 58; in compound cavities, 45)	103
Artificial crowns (gold, 47; porcelain, 10; repaired and reset, 3)	60
Bridges (3 teeth, 3; 2 teeth, 1; repaired and reset, 1)	5
Cases of salivary deposits removed and teeth polished	123
Cases of treatment for pulpitio, pericementitis, gingivitis, pyorrhea alveolaris, painful eruption of third molars (wisdom teeth), fungous pulp and polypus of pulp, hypersensitivity of dentin, reflex neuralgia from pulp disease, etc.	256
Teeth extracted for caries or alveolar abscess	14
Cases of regulating teeth (involving 31 teeth)	9
Cases of alveolar abscess	23
Pulpless teeth treated and filled	20
Pulpless teeth treated, filled, and crowned	11
Total number of operations and treatments[a]	1,336
Number of patients (not counting visits for examination or consultation)	406
Average number of operations	3.25

Table showing dental diseases, treatments, and operations for 1908, reported from various ships and stations.

Abscess, simple alveolar	254
Artificial denture	13
Bridges, new, inserted:	
5 teeth	20
4 teeth	23
3 teeth	31
2 teeth	43
Bridges repaired and reset	12
Caries with necrosis of jaw	3
Cleaned, sets of teeth	896

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[a] Any case of regulating teeth covering many visits (say from 11 to 45), or of treatment of pulpless teeth, or of adjusting crowns or bridges, is counted as one operation.

Crowns:	
Gold	262
Porcelain	60
Reset	14
Pulpless teeth treated and filled	100
Pulpless teeth treated and crowned	14
Extracted teeth	723
Extracted roots	443
Fillings inserted:	
Gold	547
Gold inlays	33
Enamel	52
Amalgam	2,092
Cement	1,089
Gutta-percha	601
Fracture (inferior maxilla):	
Wired	1
Internal splint	1
Gingivitis:	
Marginal	118
Ulcerative	48
Pericementitis, or periodontitis	19
Pulps:	
Capped	301
Devitalized	129
Fungoid	4
Removed and canals treated	433
Pulpitis treated	164
Pyorrhea alveolaris treated	110
Total	8,653
Total number of patients	4,323
Average number of treatments or operations per man	2

These tables represent the work that has been reported, and not that which may have been done or has been needed. They are, therefore, suggestive, and constitute a strong argument for those reasonable and proper dental provisions which the bureau has for many years asked of Congress. There is no basis for an accurate statement of conditions prevailing in this country respecting the teeth, but an examination of the school children in a number of cities, at home and abroad, reveals the fact that from 92 to 95 per cent have defective teeth. This observation serves as an index, and it is of value to the service as a guide to what may be expected among the personnel, particularly in the recruiting of young men.

Based upon long observation, there is an agreement among medical and other officers in the opinion that a dentist is absolutely necessary at each of the training stations and receiving stations, and it is said that at Newport, judging from past experience, two could be kept fully occupied. Dentists are also sorely needed to care for the inmates of naval prisons. These men have no money to pay for civilian services, and it is even reported that the lack of funds among the prisoners at Portsmouth prison brought about such a dearth of toothbrushes that it was not uncommon for them to appear for examination with more or less extensive inflammation of the mouth and deterioration of the teeth, and it was, therefore, proposed and approved by the commanding officer that prisoners should be supplied with toothbrushes. It is manifest, from this one example, that the services of a dentist would add greatly to the comfort and health of prisoners. The service is in pressing need of dentists at all of our home and foreign stations. This can not be too emphatically stated.

It is hoped that the department will see the importance of this matter, will be favorably inclined to support the bureau's efforts, and will do all in its power to the end that the relief asked may be speedily forthcoming.

On April 2 of this year it became necessary to define the duties of members of the Hospital Corps doing dental work and to recommend the promulgation of rules governing their practice during working and leisure hours with restrictions on the privilege to choose and a statement of circumstances under which they may be allowed to make special charges for services. The bureau's recommendations in the matter were based on the following facts:

There is no authority of law for the employment of dentists in the navy, and the detail of certain men of the Hospital Corps for such work is in the nature of a makeshift until Congress authorized the organization of a dental corps. The services of men so employed are of considerable value, but it was never contemplated that they should do complicated and difficult work which is not absolutely essential to the patient's temporary well-being, particularly as the bureau has no assurance or evidence of their ability to properly perform work of this character.

As these men are excused from all their legitimate duties in the Hospital Corps, it is only proper that they should minister to patients in the direction in which their ability lies, and for this it is believed that their pay is sufficient. There is no more justification for making extra charges for dental work done during regular hours than there would be for a hospital steward who has specialized in X-ray and radiographs; moreover, it would seem that personal motives might be very apt to influence the dental operator in the division of his time among those whose work should be properly done free and those whose work might pay.

In justice to the men who have dental ability and in the absence of any provisions whereby they might be given additional compensation out of the public funds, it was deemed proper that they should be permitted to make a nominal charge, for work done out of regular hours, to persons who apply for such work with a full understanding of the conditions under the following rules which on April 14, 1909, in accordance with the recommendation of the bureau, were issued by the Bureau of Navigation in the form of a circular to commanding officers:

1. Men of the Hospital Corps shall not, during the usual office hours, undertake difficult and intricate dental work involving the use of material not furnished by the Govenment and make charges therefor. If a man has the ability to do such work, he may, with material furnished by himself, employ his leisure hours in this manner and make a charge therefor subject to the approval of the commanding officer, who shall exercise due care that charges are moderate.
2. During working hours he shall, under the supervision of the medical officer, give all treatment necessary to the proper care and preservation of the teeth possible with the material furnished by the Government absolutely without charge to such persons as the medical officer may designate, with the approval of the commanding officer.
3. Medical officers shall exercise the same supervision over material obtained on approved requisitions used for dental purposes as for other supplies in the charge of medical officers.

In substance these restrictions are similar to those laid down by the army in General Order No. 128, of August 12, 1908, page 11, governing the hours and scope of work of contract dental surgeons, with the difference that complex work involving the use of gold may be done by men in the Hospital Corps of the Navy during their leisure hours and with material furnished by themselves.

MEDICAL ASSISTANCE AVAILABLE IN EMERGENCY.

The bureau continues to give consideration to this subject and each succeeding year furnishes additional reason for pressing it upon the department's attention and asking for those provisions which will serve to place the Medical Department in such complete preparedness that it may expand efficiently and without undue delay to meet any needs. The country has more than once experienced the disastrous consequences of procrastination in making timely provisions against the possibility of national crises, and this bureau in common with the heads of other branches of the service, who have shown themselves alive to the lessons of earlier years, desires to forestall the slighest possibility of being found unequal to its utmost responsibilities. There are three directions in which the bureau seeks to strengthen the Medical Department by reserve bodies of medical men more or less trained to naval service conditions.

1. *Medical Reserve Corps for the Navy.*—The establishment of such a corps awaits legislative authority, and it is hoped that successful effort may be made to bring the matter to the favorable notice of the present Congress. With the approval of the department, legislation in this direction was sought during the second session of the Sixtieth Congress, but for one reason or another it failed even of deserved consideration, though Congress had previously recorded its recognition and approval of a corresponding need of a sister service by the act approved April 23, 1908, which incorporated provisions for a medical reserve corps for the army. Should Congress act with similar justice toward the needs of the Medical Department of the Navy in this respect, such a corps, like that created for the army and already organized, would unquestionably take first rank among medical department resources and constitute its main dependence as an organization of unlimited proportion and closest affiliation. In urging new legislation of whatever character, this bureau does not neglect full consideration of the possible expense to the Government which may be entailed with particular reference to the advantages to be gained by the measure in question. This is nothing more than the consideration of a proposition from a sound business standpoint, and it is therefore the more important to emphasize that in this instance the balance is all on the side of benefit to the Government. In fact, as pointed out in last year's report, the creation of a medical reserve corps would not add to the required annual naval appropriation, but it would add enormously to the resources of the Medical Department in the matter of assured efficiency both in the emergencies of peace times and in the event of war. But the ready assistance in emergency and of expansion is by no means the only advantage that would accrue from such an organization. It would offer the possibility of affiliating prominent physicians, surgeons, hygienists, and laboratory workers with the navy and bringing the benefit of this advice in medical problems within convenient official reach. It would be a means of interesting the profession throughout the country in the navy and thus immeasurably widen the circle from which to recruit the Medical Corps with young men of promising ability. Any one of the larger medical centers of the country could furnish a sufficient number of well-qualified young physicians to fill the vacancies now existing in the regular service, and yet the induce-

ments which the navy is now able to offer those serving in the probationary grade of acting assistant surgeon until after the course of instruction at the Naval Medical School is not sufficient to attract them. The creation of a reserve corps would rectify this difficulty under which the service is now laboring, and actually suffering, by making it possible to offer to candidates a position with adequate pay and allowances during the period of about a year before they become eligible for permanent commissions. These and many other advantages the army is now realizing in its reserve corps. All facts considered, there should be no hesitancy in making similar provision for the navy. It is maintained that every effort to increase the resources of the Medical Department in this legitimate and economical manner will be energy well spent, and it is believed that if properly represented to Congress favorable consideration would be obtained.

2. *Naval militias.*—The naval militia organizations of the several States in their relation to the navy as a reserve force are only less important than a reserve corps would be in point of number. From the view point of probable training in, and familiarity with, naval-service conditions they at present certainly represent the most useful, although very limited, possibilities of medical department expansion. There are to-day a total of only 46 medical officers in the naval militia, a number insufficient even for the militia strength itself and in the event of the absorption of the organization as a body of the navy in national need these officers would not count materially in the augmentation of the Medical Department to meet the needs incident to the sudden increase of the naval strength from other sources. They, nevertheless, constitute the most available nucleus of more or less trained medical assistants, and as such are important. The bureau has made and is making every effort possible within the law to keep in touch with them and to keep them interested in and informed about the navy.

The official "Register of the Commissioned and Warrant Officers of the Naval Militia" of the several States, which was issued November 30, 1907, is kept posted up to date as far as the medical staff is concerned whenever changes are reported by the adjutant-generals of the States. The information which it contains is of great value in carrying on such correspondence as may be necessary in the distribution of certain literature. Each medical officer of the naval militia is on the bureau's permanent mailing list to receive the Naval Medical Bulletin and other publications which may be of use to them as possible future officers of the navy. The latest edition of the Book of Instructions for Medical Officers and of the Hospital Corps Drill Manual have been sent to them. Congress, in the naval appropriation bill approved March 3, 1909, which became operative July 1, 1909, authorizes the issue of medical stores to the various state organizations and, in order that the officers may become familiar with the manner of making requisitions for medical supplies in the navy, they will be directed to follow the regulation procedure. A limited though comprehensive list of medical supplies has been compiled in the bureau as a basis for requisitions, and while it represents a considerable modification from the navy supply table, it is believed to embody a sufficient quantity and variety for their small needs. All this has been done, and the medical officers have been invited to identify themselves more closely with medico-military circles through the medium of the Association of Military Surgeons. No means should be neglected which would serve to develop individual medical officers of the naval militia along lines calculated to better fit them for actual service with the navy, nor should any opportunity be lost to strengthen the ties which bind the naval militia organizations to the navy as a reserve force. The measure which would be really effective in accomplishing this desired object is, as yet, unauthorized by law. It remains for Congress, as mentioned in the two preceding reports, to provide for the attendance of medical officers of the naval militias at the Naval Medical School under the same conditions and with the same emoluments as are now enjoyed by right of law by the medical officers of the national guard. The law is to be found in section 16 of the act approved January 21, 1903, and regulations governing the attendance of these medical officers are contained in General Order 139, War Department, Washington, August 17, 1905. The privilege involves but an insignificant expense, but it means much to those concerned to have tangible evidence that the Government has considered the possibility of their usefulness at some future time and is disposed to give them an opportunity to fit themselves for service to their country. It is recommended that effort be made to secure the same favorable congressional action as regards medical officers of the naval militia that has been extended to those of the national guard.

The health of the different drafts of the naval militia from the several States that had their practice cruises on the *Prairie* and *Yankee* and other ships was uniformly good, with the exception of one case of typhoid which developed among the detachment from the District of Columbia while aboard the *Yankee*. It was not thought that the disease was contracted on board as the time between embarking of the detachment and the appearance of the case was too short for the usual incubation period.

3. *American National Red Cross.*—The possible functions of this organization in affiliation with the navy in the event of war or other emergency seems to have been considerably enlarged by virtue of the plan of work which has been developed during the past year. Two medical officers of the navy, Medical Director J. C. Wise and Surg. W. H. Bell, have been associated as members of the war relief board with representation from other branches of the government service and with civilians of prominence. The studies of this board have embraced a broad range of allied subjects, and the progress which has been made and formulated as a result contains several items of interest and of either direct or indirect value to the navy. Among the former may be mentioned, first, the correlation of all obtainable data concerning ships available for hospital purposes, including plans for their conversion and equipment, based upon a standard construction and outfit, so that no unnecessary time would be sacrificed in getting them into service; second, in the event of war, the actual employment of hospital ships to serve in conjunction with and as accessory to army and navy hospital ships. It is under such circumstances, in order to expedite, facilitate, and control the cooperation of the American National Red Cross with the navy, in accordance with the provisions of the revised treaty of Geneva, 1906, that the definite rule and regulations which the bureau has tentatively drawn would become operative; third, the affiliation of the National

Federation of Nurses, as a body, with the Red Cross, instead of organizing an independent Corps, and the proposition to detail a limited number of these nurses from time to time for instruction, training, and service under military conditions at certain army and navy hospitals. It is intended that this would be done without expense to either the army or navy beyond the time given by medical officers in conducting the classes. Yet both the army and navy would be profiting by the services of these nurses in their respective hospitals and at the same time would be fitting an ever-increasing number of high-class nurses for immediate service in the army and navy when the occasion demanded. Among the plans of indirect value to the navy is the proposition to carry on a campaign of first-aid instruction among the seamen of the merchant marine. This class of men is a prolific resource in any sudden need to recruit the naval forces, and consequently everything that is done to make them self-reliant and helpful in time of action is as truly preparation for war as the regular instruction of officers and men of the navy in principles of first aid. It must be apparent to all that every man who comes into the navy with a foreknowledge of how to give emergency relief to himself or a companion is by just so much a help and safeguard at a critical hour.

THE BUREAU—ITS OPERATION AND WORK.

The past year has shown a continuation of the hitherto reported success in the smooth and efficient conduct of the bureau's work. With the two years' experience since its reorganization, the duties of the component divisions have become more closely coordinated and now, as never before in the history of its operation, the varied responsibilities of the office are being expeditiously and thoroughly met. During recent years the demands upon the medical department of the navy have assumed proportions far in excess of previous years; yet in spite of this fact, and the fact that the office force has not been proportionately increased, the duties of each division have been discharged with such promptness that there was little or no unfinished work at the end of the year. This record is attributable, in part, to the industry of the officers and clerks connected with the bureau and has been at the expense of much extra work out of hours and on holidays. It is also in part due to the administrative supervision, the systematic distribution of work, the orderly manner in which matters are taken up and dispositions made, and the completeness of the card-index system as a means of ready reference to the files concerning any subject. Not only has the routine work of the bureau been accomplished in due time, but a number of special undertakings of more or less direct importance to the service as a whole, or as regards the professional and administrative efficiency of the medical department, have been brought to completion. Among the more important of these are the following:

1. The publication and issue of a second edition of the book of Instructions for Medical Officers * * *. This represents a thorough revision in conformity with the 1909 Regulations for the Government of the United States Navy and embodies much new material, both in regard to administrative regulations and professional duties. From time to time addenda will be published indicating specific changes that are to be made in these "Instructions"

so that they may be posted up to date and all medical officers kept fully advised in respect to their detailed duties.

2. The new statistical report, "Form K," was issued to the service early in 1909 as a basis for returns each quarter during the present calendar year and thereafter. The revision of this form in accordance with the latest nomenclature of distinct disease conditions, including those established in recent years by reliable advances in medical sciences and the reclassification of certain groups was the work of Surg. F. L. Pleadwell, under direction of the bureau. This officer was officially identified with the international movement to unify the nomenclature of disease and classify the causes of death, so that, by virtue of his studies along this line he was best fitted to undertake the above task, and it was also for this reason that he was delegated to represent the Medical Department of the Navy at the International Congress on Nomenclature, which met in Paris this summer.

3. Mention is made in the section "Medical assistance available in emergency" of a list of medical supplies compiled by the bureau as a basis for issue to the naval militias in accordance with authority contained in the act approved March 3, 1909. This supply table has received the favorable indorsement of the department.

4. The bureau has drafted a form which contemplates an annual statement of the cost of maintenance of each naval hospital. It embraces all data necessary to the department's clear understanding of the financial aspect of naval hospital administration and will be of inestimable value to this office in observing a close supervision over the hospital service. The information is published in detail elsewhere in the report.

5. A complete revision of the list of provisions as obtained by hospitals on annual contracts has been accomplished with the able cooperation of the Bureau of Supplies and Accounts through its valuable work on the broad question of provisions for the service as a whole. The classification and listing of a great variety of provisions and the formulation of a set of specifications relative to their character and the conditions of delivery is of extreme benefit to the Medical Department as insuring uniformity, better articles of food, and making for economy and better service. In this connection, arrangements have been made for the inspection and certification of all meats and other products according to the requirements of the pure-food law and the regulations of the Department of Agriculture.

As affecting supplies in general, including foodstuffs and medical and surgical supplies, etc., it is worthy of note that a revision of all the Medical Department requisition forms in conformity with the ideas of the Bureau of Supplies and Accounts and with its assistance has been accomplished. This revision was in the nature of a simplification, and represents a wonderful improvement over the old system in economy of time and labor and in expediting transactions.

The bureau was approached during the year by four separate parties, representing different antituberculosis societies who desired the navy's participation in the exhibits which were being planned in several cities of the country following the International Congress on Tuberculosis at Washington, D. C. In compliance with these requests, 36 photographs, showing the buildings, grounds, etc., of the United States naval hospital, Las Animas, Colo., were forwarded for exhibition to New York, Philadelphia, Dallas, Tex. (Texas state fair), and Seattle, Wash. (Alaska-Yukon-Pacific Exposition). The naval hospital at Las Animas is the insignia of the navy's association with antitubercular interests and the tangible evidence of the active part which it is playing in the world-wide campaign against that dreaded disease. The tuberculosis educational propaganda has awakened all classes to the danger of the disease and acquainted them with the movement to suppress its ravages. Intelligent interest and support is being aroused all over the country; the people, from among whom the service draws its recruits, are familiar with the provisions necessary to care for those sick with this disease, and it seemed, therefore, most desirable that these opportunities to display the photographs in question and give wide publicity to the splendid effort which the navy is making in behalf of its tubercular sick should not be lost. Moreover, the lay public is fairly well informed upon the general hygienic and sanitary requirements as well as the standard of medical service of the present day, and it is a matter of importance to the navy that the young men of the country shall not be deterred from entering service either by an ignorance of existing provisions for their care when disabled or a feeling that necessary regard for their protection from avoidable disease influences is being neglected.

Intimately associated with this question is the proposition for medical representation on the board of inspection and general board, particularly the latter, which has been discussed in previous reports as a most promising means of guiding certain features of naval development, in which health is a considerable factor, along sound sanitary and hygienic lines. The Medical Department's identification with the work of the board of inspection and the general board in the manner suggested would accomplish much in this direction, not only by perfecting the constituent organization of the boards, so that technical advice in another important division of their responsibilities may be immediately available and by providing such independent participation in the studies and discussions of these boards as would enhance the thoroughness and comprehensiveness of their conclusions, but by creating a medium through which the bureau may communicate its ideas in matters of abstract interest and general policy, with which it may properly concern itself. Aside from this there are particular subjects and definite undertakings in construction and of other character upon which the bureau should be consulted. These were enumerated in more or less detail in the reports for 1907 and 1908, and need not be repeated. The department's attention, however, is invited to the broad consideration of the subject therein presented, which is as strong in arguments to-day as when written.

The bureau wishes to acknowledge the courtesies and the kindly assistance which have been extended by the other bureaus during the past year. It must be recognized that such cordial relations and a spirit of cooperation are necessary to the smooth and efficient prosecution of the business of the department; moreover, each branch of the service has a function which bears an important relation to the work of the whole organization and anything short of hearty, material support can not fail to be detrimental to the ultimate purpose of its existence. A common aim, that the service shall be maintained in its highest state of efficiency and that it shall be prepared to meet any emergency, underlies the efforts of all, and the progressive improvement of every branch in accordance with ever-changing standards can be utilized to the utmost advantage of the service only by harmonious action.

In certain special matters, such as concern dentists and nurses, the interests of the Medical Departments of the Army and Navy are identical and the relation between the office of the Surgeon-General of the Army and the bureau has, therefore, been unusually close during the past few years. The intercourse incident to an exchange of ideas regarding these affairs has been extremely pleasant and profitable and there is now an entire agreement as to what is necessary for the two services in these directions.

The question of establishing the office of general inspector of hospitals is discussed in detail under the section "Hospitals" of this report.

RECRUITING.

The difficulty experienced during former years in maintaining the necessarily high standard of physical requirements in recruits for the Navy and Marine Corps continues to be a matter of grave concern to the bureau. Despite the utmost care, a certain percentage of men find their way into the service only to be condemned by medical survey and discharged at an early date. While some of the conditions which have been met with heretofore in this connection must be considered irremediable there are others which may reasonably be counted upon as amenable to correction. During active recruiting, when a large number of men must be examined within a limited time, there will be occasions when the examining surgeons are pressed and unable to devote adequate time to each individual. With the limited number of medical officers available for recruiting duty at present, this is a situation which arises with undue frequency, but it is hoped that the efforts being made by the bureau to fill the vacancies now existing in the Medical Corps may ultimately result in ameliorating this unsatisfactory state of affairs to some extent at least. It has been thoroughly demonstrated that the physical examination of recruits is a duty which demands not only the care, skill, and conscientious attention to detail which the medical officers so assigned have almost uniformly displayed, but a familiarity with service conditions and requirements which comes only with years of active experience. With a full recognition of these facts the bureau has been compelled in most cases to designate younger officers to do this work, the imperative demands of hospitals and the force afloat leaving few of the senior members of the Medical Corps available for recruiting. To obviate this disadvantage as far as possible the practice of instructing newly appointed medical officers upon this important subject will be continued during future sessions of the Naval Medical School. In other ways also the bureau has done and continues to do all in its power to keep medical examiners up to the point of constant vigilence to discover latent defects and to emphasize the need of exacting the established standard of physical condition in all candidates. With this end in view, it is found desirable from year to year to invite attention to certain important considerations. The influence of overweight and underweight on vitality is a matter of importance as evidenced from a practical business point of view by the study which life insurance companies give this subject. At our recruiting stations greater recognition must be given to the dangers which beset those who are far above or below the correct standard of weight for a given height and age. It signifies little that the standard of maximum and minimum measurements which have been adopted for the navy is slightly above the average for the insurance risks, as in the selection of recruits the navy standards give greater promise of securing that potentiality of physical efficiency which is so necessary in a service of uncertain and sharply varying demands upon endurance and all human faculties.

The required standard of visual acuity is to be supported and maintained on the same ground. The navy has thus far experienced no difficulty in obtaining a sufficient number of men with full normal eyesight, and so long as this continues to be the case it would be unwise to be influenced by the seemingly parodoxical findings in the investigation conducted by the army with respect to the relations between various degrees and types of visual acuity and marksmanship as reported in Circular 5, War Department, January 25, 1908, and to consider lowering the navy standard. When the emergency arises that there is any serious falling off in enlistments on account of visual requirements it will be time enough to take the step, and until then it would be idle to discuss the question more extensively.

Suffice it to say that in the navy the conditions are in many respects vastly different. The naval battles of the future will be fought at a distance of many miles, there will be little or no short range firing, and there can be no place for the myopic, markedly astigmatic, or otherwise defective eyes. Medical Director G. E. H. Harmon pertinently remarks:

> Color blindness has been usually made an absolute disqualification (this is not so in the army), and why should not myopia and high degrees of astigmatism be equally so? In the latter cases not only the color of the light but the approaching vessel itself is invisible to the officer (or man on watch) charged with the safety of many lives at a time when driving rain, sleet, and blinding sprays render spectacles useless.

Surg. E. J. Grow has contributed an important advance toward insuring the reliability of the results obtained in examining candidates for visual acuity. He has devised a visual test card andframe with standard illumination which, while furnishing uniform standard conditions for testing eyes, makes it impossible for any one to learn the letters and give a false impression to the examiner, either designedly or unintentionally.

The examination for color blindness and the difficulties in determining the existence or absence of the defect in certain candidates for enlistment is continually coming up, and the various instances seem to depend upon the question of color ignorance and the occurrence of accidents just prior to examination, such as exposure to the glare of snow or other similar temporary blinding influence. In the examination of recruits at Oklahoma during the past winter a peculiar condition developed. Following a heavy fall of snow about 90 per cent of the candidates for enlistment showed color blindness, the errors always consisting in a mixture of the blue and the rose purple skeins. These instances exemplify points which must be borne in mind in testing color vision and the care which must be exercised in the interest of the Government and in justice to the particular candidate.

As was pointed out in the section "Dentists for the navy," dental disease and other dental defects are very prevalent throughout the country, and therefore, perhaps, the most common item of the physical condition of applicants calling for a discriminating judgment in the examining surgeon. In this connection it is said that medical officers on recruiting duty are too prone to accept men for enlistment whose teeth, lack of teeth, or cavities therein should cause their rejection. The required standard of dental condition necessary to qualify for admission to the service can not be too firmly insisted upon, and such teeth as have suffered disease should be artificially sound. If care in this direction is not exercised, it can only result in saddling the service with men who from the very outset of their careers will be inefficient and a source of solicitude and expense.

Other physical features bearing upon susceptibility to disability and which deserve the careful consideration of examining surgeons have been the subject of report from various sources during the year. Enlarged tonsils and phymosis, for example, predispose to disease, and in like manner other seemingly trival defects, such as patulous inguinal rings, become disabling conditions under the stress of service life.

Again certain disease influences are prevalent in and more or less peculiar to certain parts of the country, and applicants for enlistment from these sections represent the possibility of being the victims of them in such form and stage of development as would escape detection by the usual routine examination or unless specially looked for. In an investigation conducted by a member of the Medical Corps of the army it was discovered that among a limited number of southern-bred recruits examined the prevalence of hook-worm disease existed to the extent of 85 per cent, while observations at Puget Sound, Washington, show that among candidates from the great Northwest, and particularly those born or of long residence in the extreme Northwest, thyroidal enlargement of varying degrees was present in a considerable proportion. The exact per cent is not stated.

While the thorough reexamination of all recruits which is now conducted immediately upon their arrival at the respective receiving ship results in an increased number of early discharges for physical disabilities, this prompt elimination of the physically unfit and ineligible is unquestionably an important and essential safeguard to the Government. Any impression that this may cause an excessive drain on the enlisted personnel, only to be made good by additional efforts at the recruiting stations, must be weighed dispassionately against the positive knowledge that such men are not merely ineffective themselves, giving little or no return to the Government if retained in the service, but are prone to exercise a detrimental effect upon the morale of their associates. The mental attitude of a man whose physical infirmities prevent him from fully meeting the demands of his station and surroundings soon becomes one of chronic discontent and discouragement, a nuisance alike to himself, his shipmates, and his superior officers. Another reason for the immediate survey of such cases lies in the importance of determining the presence of physical defects existing prior to enlistment. Obviously the longer such determination is delayed the more difficult it becomes, until it may well happen that the development of obscure disabilities, in no wise incident to the service, is made the plausible basis of a pension claim. As a matter of fact, cases that are unfit for the service are constantly appearing, and it is considered that some months must elapse before all unfit cases can be eliminated. Cases that were apparently physically sound break down when subjected to ship's life, and physical defects previously unrecognized become apparent. These cases have presumably been carefully examined at recruiting stations and at receiving and training stations. It can not be said that they were imperfectly examined, but rather that they are constitutionally weak and must be eliminated later in the service. For this reason it is considered that any doubtful case should be rejected, rather than be held in the service at recruiting or training station in the hope that he can stand the physical requirements of active duty. This is particularly true of those intended for the engineer branch of the service, than which none makes a more severe demand upon endurance. With the above facts in view, the bureau nevertheless desires that due weight be given to the opinion of the examining surgeons, and boards of medical survey are particularly required to eliminate the possibility of malingering in these cases, and to make allowances for the depressing effects sometimes temporarily resulting from new environments.

Among the more common disqualifications noted upon reexaminations are flat feet and organic heart disease. The first of these defects is particularly prevalent in recruits enlisted for the Marine Corps, and it seems almost impossible to sufficiently impress upon civilian examiners the importance of this condition; no sooner do these men attempt the routine drills than they find a ready excuse from duty in the immediate development of local pain and weakness.

As the determination of heart disease usually depends upon the recognition of slight changes in the valvular sounds, it is to be expected that the noisy surroundings of many recruiting offices will, as previously pointed out, cause them to occasionally escape the ear of the examining surgeon.

A statistical examination of the medical surveys during the past year affords some very suggestive information in this connection, and, while complete returns for every month are not available, it appears that the following data for June, 1909, are fairly typical:

Survey statistics for month of June, 1909.

	Navy.	Marines.	Total.
Cases surveyed	204	87	291
Recommended for discharge from service	130	71	201
Disabilities in line of duty	22	1	23
Disabilities not in line of duty	108	70	178
Under 3 months' service	33	31	64
Over 3 months' service	75	39	114

Percentage recommended for discharge of the total number surveyed	69.07
Percentage of the total number of men recommended for discharge:	
In the Navy	64.17
In the Marine Corps	35.83
In service under 3 months (recruits), Navy and Marine Corps	31.84

Certainly the most striking fact shown herein is the high percentage of men discharged from the Marine Corps by reason of disabilities existing prior to enlistment, viz, no less than 70 as compared with 108 from the entire navy. Considering the relative number of men in the two branches of the service, it thus appears that the rate of loss in the Marine Corps is a little over three times that of the navy, the ratio of discharges for disability not in the line of duty for the former being 7.46 + per 1,000 of force, and for the latter 2.48 + per 1,000 of force. It is no reflection upon the professional skill of the civil examiners to express the opinion that this discrepancy is chiefly due to their inevitable lack of knowledge of service requirements, though the bureau, as previously reported, has made substantial effort to advise them on the subject. This question of surveys for disability offers an interesting and valuable field for study, and it is the intention of the bureau during succeeding years to collect and tabulate data from incoming records for publication in annual reports.

ATTENTION TO PHYSICAL NEEDS OF PERSONNEL.

Physical training and exercise in the open air.—Much thought is being given to and much is being written about this subject. As a matter of fact, it represents nothing really new, and has engaged serious attention since the early ages, only fluctuating in prominence from time to time. Of late there has been a tendency toward greater and more systematic physical development, and the campaign in civil and military circles is being supported by those who are deeply concerned in the well-being of the present generation, the hardihood of generations to come, and the stability of the nation in the varied enterprises so vital to its existence, prosperity, and usefulness. The advocates of physical exercise, who to-day number more than ever before, can not be accused of indulging a fad or carrying on a pseudo-reform. The importance of the matter finds evidence in the strength of the movement and the unassailable reasoning back of it.

Midshipmen.—The whole question of the physical training of midshipmen was revived and given new importance early in the year 1905 by the reports of Surg. E. S. Bogert upon the approaching conclusion of his tour of duty at the Naval Academy. This officer was detailed to this duty, and assumed charge of the work on October 28, 1903. He interested himself deeply in the problem of physical development, giving broad and earnest study to the subject, and carried out his ideas of the requirements with such intelligence and professional judgment that the results obtained—albeit not without difficulties—were so striking that even the most casual review of his records compels conviction that systematic physical training of midshipmen is absolutely necessary. For example, the very low average strength of the class of 1904 is shown, and the comparatively slight improvement after four years in the Academy is striking. It must be remembered in this connection that the data presented deals with a period of life when marked improvements are to be expected, provided intelligent methods are employed. In contrast to this record similar data concerning the classes of 1907 and 1908 are presented, and the marked improvement after only about sixteen months under systematic training speaks for the policy of wise supervision. At earlier times in the history of the Naval Academy merited attention was given this subject, notably during the service of Medical Inspector (then surgeon) H. G. Beyer at the institution, but during succeeding years it vacillated in importance, according to the views of the particular superintendent and the department, and just prior to Doctor Bogert's period of service it had declined to a state of comparative neglect or misdirection, as evidenced by the fact that, of the 62 members of the class which was graduated on February 1, 1904, only 6 made as high a strength test as they had made twenty-one months before.

This observation made a deep impression and steps were promptly taken to rectify the deficiency in time and attention devoted to physical training, with a view to rounding out the proper development of midshipmen—not only in the interest of individual welfare, but as a matter of great importance to the academy and the service. Space does not permit a detailed review of Doctor Bogert's report. In part his orders required him to "pay special attention to the physical condition of all midshipmen entered for any athletic contests, and in training for the same, to the end that no midshipman, not in every way physically fit, shall take part in athletic contests of any kind which might result in injury to his health," and also with the aim of improving the physical standard of those competing. This embraces supervision of diet and the results of his obedience to this direction were eminently satisfactory. The effects of athletic contests upon the health are sufficiently well recognized and supported by data to emphasize the need of medical authority in the supervision of contestants. While such exertion as the various athletic contests require may not necessarily result in immediate injury, there is a possibility that areas of lessened resistance may be produced which represent vulnerable points of attack to disease influences or for the development of serious organic changes. This liability is especially great in youths and the heart should be the object of attentive consideration in this respect during the period of its growth, between the fifteenth and thirtieth years of life. With respect to the physical supervision of all midshipmen the system which he adopted was based upon the particular needs of each individual as determined by measurements and tests, as was the case during the régime of Doctor Beyer. From the data obtained by these examinations the course of physical development was plotted and this graphic illustration of the physical defects of each midshipman served as a guide in prescribing the exercises necessary to improvement. The principle of this system was not only scientifically correct, but offered, theoretically, the possibility of thoroughness and best results and in its actual application proved entirely practicable and satisfactory. It was recommended that the department of physical training "be established on a permanent basis in charge of a competent officer," and in urging the desirablity of such a step upon the consideration of the authorities the opinion was expressed that the work which could and should be done in this direction was of the utmost importance toward directly raising the physical standard of the brigade of midshipman and prospectively that of officers throughout the service.

The bureau is at a loss to understand why the matter so forcibly presented received such scant attention and was allowed to fall into neglect. It is believed that the movement to revive the subject and establish a complete system of physical supervision will impress all concerned as to its inestimable value and that the Department of Naval Hygiene and Physiology, with the senior medical officer at the academy as its head, who is to act as a member of the Academic

Board, which was created by General Order No. 10 of February 15, 1909, after recommendation by the bureau under date of January 22, 1909, will demonstrate its right to a prominent place in the education of future officers. The Medical Department has never lost sight of the fundamental importance of, and has given much study to, all that is calculated to better the physical stamina of the personnel of the whole service, more especially the younger element, in process of development, as represented at the Naval Academy, for it is a long accepted fact that the curves of physical and mental development observe a close parallelism and that there is a demonstrable correlation between the capabilities of body and mind. The manifest increase of interest in this direction is, therefore, viewed as promising much, and the bureau is taking advantage of the general disposition to make every provision for the final success of the undertaking and to assist in the organization of the department. Struck by the number of physical defects among the midshipmen, which the medical examining board brought to light in 1908, the superintendent of the Naval Academy, Capt. Charles J. Badger, rightfully attributed it to a lack of proper direction of the physical side of the young men's lives. Among the first steps which he took toward remedying what he believed to be at fault was to request the assignment of a medical officer not only to give instruction in hygiene and physiology, but to advise and guide in matters of physical training, and who would bring to this duty special qualifications and special knowledge of the subjects concerned. The bureau having long sought this very thing, was more than ready to comply with this request, and though there was no one immediately available, the nomination of Passed Asst. Surg. W. N. McDonell was soon made. Shortly after this officer had reported, on January 15, 1909, he was ordered to visit a number of educational institutions in different parts of the country, in order to make such an investigation of the various systems of physical training in use as would enable the most efficient utilization of the excellent gymnasium equipment and the facilities for physical training at the Naval Academy. On March 20, 1909, the superintendent also appointed a board "to investigate and report upon the methods of physical training for the midshipmen now followed at the Naval Academy." The studies of Doctor McDonell, as those of preceding medical officers, and the deliberations of the board lead to the opinion that definite changes should be made in the course at the Naval Academy in favor of a larger proportion of attention to and more serious consideration of body needs, but the superintendent characterized the recommendations submitted as in certain particulars unnecessarily radical and inimical to the best results as regards instruction in professional branches. While the bureau, in the main, is in hearty accord with the stand which the board of investigation took, it is recognized that consideration must be given, in adopting a routine of physical training, to the importance of comparative values of the subjects taught and that the time assigned to physical training should necessarily be fixed with reference to the required time assigned to other subjects.

The bureau is impressed with the necessity, in connection with physical training, of having an accurate medical supervision over midshipmen pursuing any special exercise, such as track work, rowing, etc., with a view to determining physical fitness and the appropriateness to the individual of the particular athletic work undertaken. It is not improbable, for example, that many of the heart troubles (functional or otherwise) that develop in midshipmen may have their origin in the injudicious pursuit of forms of exercise unsuitable for the individual concerned. The urgency of careful supervision of such cases with respect to the character and degree of exertion indugled in deserves particular emphasis.

The department of physical training should certainly be in charge of a medical officer, for such an officer is, by profession and training, best qualified to determine the physical defects shown by the anthropometrical measurements, and through his knowledge of anatomy and the physiology of exercise he is by far the most competent to prescribe the exercises needed to most speedily remedy the physical defects exhibited. Moreover, the one who prescribes these exercises can best oversee their performance. Nearly every large university employs a doctor of medicine to superintend this branch of work. It is only the medical officer who can thoroughly examine the heart and lungs, etc., and his military training and experience should qualify him to properly perform the small purely military part of the duty. Again, a medical officer in this position can be of great assistance to the conduct of athletics; and it must finally be upon the opinion of a doctor that questions of physical suitability of midshipmen to contest in the more strenuous branches of athletics will depend. Lastly, the opportunity also to there inculcate enduring habits of exercise deserves emphasis. The character of the work demands special skill and aptitude as well as experience and interest in the subject, and it is the bureau's intention to nominate for this duty officers combining these requisites who will devote themselves to this work under the senior medical officer as head of the department of hygiene and physiology.

It may be said that chronologic age does not correspond at all closely with physiologic or anatomic age, but that anatomic age goes hand in hand with physiologic age, and it therefore necessarily follows that any system of training rightly conceived must be based in principle upon a study of the individual. Doctor Rotch, of Harvard, gives consideration to this question and makes certain valuable suggestions along new lines in a recent paper entitled "Chronologic and Anatomic Age in Early Life." His explanation of the individual contemplates an X-ray determination of the degree of ossification of the bones as an index of anatomic development, compared with age; but there are difficulties to be encountered, if not questions as to its applicability, in the more or less advanced years represented by midshipmen, in employing the method at the Naval Academy. However, the bureau is studying the method with a view to determining its applicability, and if it seems to offer the possibility of good results, an officer will be detailed to carry on the experiment.

If a more accurate system than the anthropologic measurements of classifying midshipmen according to physiologic and anatomic age, such as the one suggested; proved reliable and practicable, a distinct step forward would be made in the supervision of the two groups of young men whose physiological development does not correspond with the normal standard of those years. It is evident that the employment of such a scheme of grading would be of great benefit to the individual in that he would not be permitted to undertake either mental or physical tasks tending to subject him to harmful "strain," and of value to the Government in that desirable men might be conserved for the service—men who otherwise would break down in being allowed the attempt to maintain a position of equality with those physiologically more mature. It is estimated by Passed Asst. Surg. Harold W. Smith that at least two years' study of the midshipmen by the use of such a method would be necessary to determine its value.

Officers of Navy and Marine Corps.—In the discussion which was aroused by the general order prescribing a physical test for the navy analogous to that prescribed for the army, there has been much evidence of regrettable misinterpretation and an evasion of the point and purpose. There seems to be much "confusion between strength which can be measured by foot-pounds and that which spells utility and can be measured as resistance to disease.' Good, vigorous, capable health is what is sought and this alone should be the criterion of success in the ambition which is responsible for the order in question. It is an abnormal state of affairs which has created the necessity to contend for the principle that good health demands regular attention to the body. The human organism is constituted for exercise, and a greater or less degree of unbalancing of the system is almost certain to follow a neglect of or an apathetic regard for the requirement. A study of mortuary statistics shows that the farmer is the longest lived, whereas those whose occupation for one reason or another keeps them indoors, and in other ways makes no demand upon physical exertion, fall short of longevity. Thus those in this class who do not work their hands need exercise, free and open air, and periodic relief from the stress of mental occupation. The human system must have the benefit of these things with regularity and system, and he is unwise who deprives himself of the advantage of them. Unfortunately, and it was a matter of common observation, there have been many who were unwise in this respect, and hence the order that every officer must show once a year that he has done by himself and the Government, which depends upon him in emergency, as he properly should in respect to maintaining himself not only in a state of mental power but physical endurance.

This whole matter of exercise and recreation requires serious attention and it should receive unbiased consideration and not intemperate criticism.

With the material advancement in the requirements of the naval profession, life on board ship has become correspondingly complex, and a successful naval career, even in time of peace, now demands perhaps a higher standard of mental and physical vigor than any other military profession. Opportunities for physical exercise, however, have lessened, for the restricted and encumbered spaces on the upper decks of our modern men-of-war do not conduce to exercise in the open air; hence much time is spent below and a sedentary habit readily formed. That this habit is persisted in by many individuals when on shore duty is a matter of ordinary observation. It is the experience of many officers that it requires the greatest determination to resist the tendency of ship life to thus contribute to physical and mental stagnation, and this is the more noticeable as the cruise progresses and among those who are beyond middle life. Many older officers, and hence those in authority, through long inaction, have succumbed to the sedentary habit and betray complete indifference to this question. They are of necessity not sympathetic toward others who still appreciate the benefit that comes from exercise in the open air and, therefore, do not encourage them in this direction.

Too much stress has been laid upon the test as such. It is merely the most available practical means to a desirable end, viz, to stimulate the habit of daily exercise on the part of all officers, especially those of middle age and beyond, in order to maintain a physical condition which will conduce to the highest service efficiency and enable all officers to keep themselves in fit condition for the maximum service they may be called upon to perform. Moreover, a broader and more foreseeing consideration of the value of the test will convince those to whom it may now be a hardship that ultimately, by virtue of its practice from early manhood, older officers will be in better physical condition as a direct result, and thus, inevitably, the services of many officers will be conserved.

It was proposed that line officers afloat be subjected to a test such as unusual periods of watches on deck or in the engine room, etc., in lieu of the walk, or ride on horseback, or bicycle ride. This, in the bureau's opinion, would not have fulfilled the requirements and general purposes of the physical test as contemplated in the President's order. The ability to stand a prolonged watch on the bridge, the deck, or in the engine room of a ship does not necessarily proceed from a good physical condition, such as would result from physical exercise ashore at every opportunity and which it is the special object of this order to stimulate among all officers, whether ashore or afloat. It should also be said that the passive requirement, under ordinary service conditions, of standing a prolonged watch on the part of the commanding, executive, navigating, and watch officers does not, in the bureau's opinion, carry out the purposes above stated. Endurance of this kind, or lack of it, is rather an index of the moral stamina of the individual without establishing in any degree the physical fitness of the officer. Something more than the ability to successfully complete a watch is required, and any officer made to keep himself in good condition by attention to daily exercise will have no difficulty in conforming to the requirements of prolonged watch duty and have sufficient margin of energy remaining to perform any further active service that he might be called upon to perform. Moreover, while watch standing requires a certain degree of endurance, it is in the line of the regular duties of a naval officer, and no amount of indulgence in this form of endurance would conduce to the physical or mental betterment of the individual concerned, but would tend, on the other hand, to result in such fatigue as to render officers less inclined to such active physical exercise when ashore.

If the test applied to the navy does not stimulate officers on board ship and ashore to devote themselves to regular exercise at every opportunity, then, in the opinion of the bureau, its main object is defeated, and for those who comply willingly and gladly with the spirit of the order as primarily in their interest the test dwindles to trifling proportions and loses its objectionable signification. Relative to this matter, Surg. A. G. Grunwell remarks:

> It is noteworthy that even under the most favorable conditions comparatively few officers take the best advantage of their chances for exercise and relaxation on shore. Navy life, in all its tendencies, reduces the bodily exertion of officers to a minimum, so that even the youngest of them soon fall into habits of taking practically no exercise except what little they obtain on watch and at drills. Even on shore, whenever a cab or other vehicle is to be had it is seldom that even short distances are walked. This is certainly an unhealthy condition, for it is sure to lead to early bodily and mental torpor, if not to more serious consequences, not so remote as many imagine.
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> The only remedy for this widespread physical apathy is to make a certain amount of bodily exercise compulsory. Of the various forms of exercise, walking seems to be the one best suited, it being one of the best exercises, and it can be carried out the most universally, at the least expense, and with the greatest enjoyment—mental as well as physical—for all who take it up intelligently. * * *
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> Certainly something should be done to counteract the condition of lassitude discernible at present throughout the service and for which lack of exercise and too much sameness are to blame. All men, and especially young, developing men, need a comparatively large amount of active exertion as well as mental change, and if these can not be obtained the inevitable sequence of early deterioration must follow. Ship life, at best, is a form of imprisonment, and when followed as a calling needs special accompaniments of exercise and mental change to offset its deteriorating effects. To accomplish results, any measure in this line must be systematically undertaken and must cover long periods of time. A good deal of education as to the importance of proper exercise and relaxation upon the physical and mental well-being is required first of all, and this education should begin at the Naval Academy.

Enlisted men of the Navy and Marine Corps.—What has been said with respect to midshipmen applies with almost equal force to the young men of our training stations and only in less degree to the older enlisted men throughout the service. There is individual and service need for unfaltering common-sense attention to their physical and mental constitution, irrespective of specific disease influences, but in meeting the obligation in the one direction we will also be enhancing resistance to infection. The bureau has long contended for this principle and has repeatedly urged rational provision for physical development by special means and larger opportunity for healthful recreation and outdoor exercise, which will embrace the whole naval force and not merely selected individuals. The physical condition of the navy demands it, and it is the encouraging sign that many outside of the Medical Department have come to the realization, as evidenced, for example, by the Atlantic Fleet regulations relating to athletics, the expressed opinion of the recent board of investigation at the Naval Academy, and opinion of Commander A. P. Niblack in his "Plea for physical training in the navy."

In 1905, Surg. E. S. Bogert, as member of a "board to revise the service drill books," submitted an outline of a plan for an improved and more complete method of physical training for the enlisted men of the navy. This scheme, similar to that suggested by Commander Niblack, was based upon a determination of individual needs by anthropological measurements and dynamometer tests, with a view to prescribing exercises to employ the groups of muscles thus found lacking in development, the system to be carried on throughout the service under guidance of a corps of specially trained instructors. The bureau does not wish to be understood as disapproving the application of these ideas to the service in general, nor of any ideas calculated to improve the physical tone of the naval force. The bureau's attitude is quite the contrary. Unquestionably, careful personal supervision should be exercised over the young personnel of the navy at the several training stations, as at the Naval Academy, as those stations represent the real field of their usefulness; but their employment throughout the service, on board ship, etc., seems less practicable. Furthermore, what is really needed is a larger proportion of time spent in outdoor exercise. With the passing of large unencumbered upper deck, the virtual disappearance of sail drill and other evolutions aloft, the introduction of electrical apparatus on modern men-of-war for hoisting and handling boats and heavy weights, and with the increased employment of men between decks and in confined spaces, considerations of health could not indicate otherwise. Except when coaling ship or taking in stores, the crews of ships are rarely called upon in a body to perform work which requires any great degree of muscular action. It is absolutely necessary, therefore, in order to keep them in a robust condition and to prevent muscular atrophy, to substitute in the place of manual labor forms of exercise for all which will in the greatest measure possible produce similar physical results.

MALINGERING.

Simulated diseases, or feigned illness, represents a subject which should be of more than ordinary interest to naval surgeons, and it is brought to the attention of the department for the purpose of enlisting its active moral support of medical officers in their contention with this pernicious practice. It is also desired through this medium to reach the members of the Medical Corps and sound what the bureau believes to be an important note of warning as to the proper professional attitude and, in general, to indicate the management of cases. Malingering could be made an interesting and an amusing subject by the narration of various cases, and it is important to remember, throughout all that which may be said hereafter, that a sense of humor is an important asset in the preservation of one's balance and equanimity when confronted by a case of this sort. But the subject has, depending upon the circumstances surrounding each case, a more or less serious aspect as regards the perpetrators of this deception, the medical officers concerned, and the service broadly. It involves far-reaching, subtle effects, and should not, therefore, be discussed lightly.

Its deep significance to the navy as an organization lies in the uncertainty with which it surrounds the efficiency of men for the service of the country in times of peace and, particularly, of war, and the immediate and prospective expense to the Government in the management and disposition of cases and in pensions for unsolved cases. Malingering has been a common subject of consideration in military medical circles for many centuries, and there are, no doubt, upon the pension rolls of our Government hundreds of cases of pensions which owe their origin to malingering. That this expresses the truth is a matter of common suspicion, and daily effort is being made to reduce this number. It is just here that medical officers are playing their part as diagnosticians and working single handed in the campaign of elimination, for from the legal point of view the proof of such offenses, which must precede punishment, is usually not a matter of direct and positive evidence, but of judicial conclusion, and therefore insecure. The types of affections which this character of imposter attempts to simulate are innumerable—both medical and surgical in nature—and vary somewhat with the special object sought and the resourcefulness of the individual. Among the conditions observed in the navy are neurasthenia, rheumatism, enuresis, defective vision, color-blindness, epilepsy, and insanity. A persistent or prolonged refusal to acknowledge the benefit of treatment in actually existing, obscure conditions is another form of the same disposition to mislead, and there is no end to those who designedly exaggerate the disabling feature of existing defects—flat feet and varicocele being among the most common.

In writing on this subject, Surg. W. B. Grove says from time to time men appear at the sick bay complaining of not being able to do their work on account of a varicocele. These men can roughly be divided into two classes—those who are really suffering from their condition and those who pretend that they are. A varicose condition being present, all cases are offered immediate operative relief. This radical measure dissuades many from continuing the deceit; but, on the other hand, those needing treatment welcome operative relief. Given a case of varicocele, treatment may be necessary not only for the physical discomfort present, but to allay very real mental symptoms, which, if disregarded, may lead to melancholia. The proffer of operative treatment eliminates the man who uses a small varicocele as an excuse to get out of his legitimate duties, and gives relief in those cases in which it is really needed.

Many instances are recorded in which there was a continued and willful aggravation, by various devices, of unquestioned disease or surgical condition, such as gonorrhœa and ulcers. For the purpose of obtaining discharge by invaliding, others have gone so far as to produce surgical conditions such as artificial tumors by the subcutaneous injection of paraffin. The physical danger to the individual in these latter varieties of self-maiming lies in an ignorance or disregard of the disastrous consequences. An example in point is that reported from the prison at the Boston Navy-Yard, and is printed under that heading in the section "Prisons and prison ships."

The feigning of insanity is not uncommon among the general court-martial prisoners, and is often difficult or impossible to detect. A homicidal patient wrongly suspected of malingering and allowed at large might do irreparable harm. Two cases of feigned insanity occurred at the Portsmouth prison during the year, and were successfully exposed by an ingenious method. Again, an epidemic of alleged defective right-eye vision developed during the year among recruits at the marine barracks, who sought to secure discharge from the service. The deception indulged by this group of cases was disclosed by Surg. E. J. Grow and the offenders were punished. The subterfuges resorted to are many. Some are easily exposed, others are exposed with difficulty, and others, though suspected, can not be proved; but all are annoying and perplexing. Their discovery and punishment have a wholesome effect upon the morale of all those cognizant of the affair, and failure to detect threatens discipline. The detection of impostures of one form or another has tested the ingenuity of naval surgeons, and though the zeal of these officers and the generally better class of men now being enlisted have combined to reduce malingering, cases are continually arising and are still far too numerous. The field for this sort of imposition has been greatly extended by the application of the principle of employers' liability to navy-yards and stations. It is partly this fact which has led the bureau to discuss the question. Though among the midshipmen at the Naval Academy the honor system with respect to intentionally misrepresenting the condition of health is being successfully tried, it is without doubt too much to expect that throughout the broad range of government service there will not be many examples of imposition by misrepresentation. Medical officers, as is to be expected, now and again err in their judgment and occasionally accuse an innocent man, and it is in this regard that caution and advice are indicated.

The prevalence of malingering and the constant liability that cases of it may be encountered unconsciously creates a suspicion in the minds of medical officers, and the whole service should recognize that this may at any time, unintentionally, react unjustly in exposing the innocent to suspicion and reproof and depriving a bona fide case of needed attention. This is a danger to which the skulkers most certainly expose honest men, and those responsible for such consequence therefore constitute an enemy to society, and the crime is all the more flagrant because of them. With this idea clearly represented there can be no excuse for the entertainment of a false sense of fraternal loyalty or the protection of offenders. They should be hunted down by all as a matter of self-protection.

On the other hand, medical officers are cautioned to fight against the development of a suspicious attitude of mind in the exercise of their professional work. If allowed to gain an ascendance, it will surely ruin that perspective so necessary in the study of cases, will warp proper judgment, and lead to regrettable mistakes. It will not do for a medical officer to be too jealous of his amour propre—too fearful, in other words, of being deceived and made use of. It will not do to view such individual attempts too seriously or to lose that oftentimes saving sense of humor in the management of suspected cases. It is far better to give unnecessary care to several cases of what might be feigned illness than to neglect one real sufferer.

BARRACK BUILDINGS, ETC., FOR RECRUITS AND THE CREWS OF CRUISING SHIPS UNDERGOING EXTENSIVE REPAIRS.

The desirability of keeping this matter before the department until adequate steps are taken to remedy the existing conditions and make proper provision for the quartering of men under the above circumstances is the bureau's only reason for giving space to it in this report. It is a matter which has received the studious attention not alone of this office, but of medical and line officers who have been in the position to make such practical observations in the premises as to leave no room for other opinion than that the present custom of keeping men on board ships and attempting to meet their physical requirements for protracted periods during the process of extensive repairs is unqualifiedly bad; that, if it is impracticable to completely turn the ship over to the purpose of such repairs by putting it out of commission or in reserve, the crew, at least, should be removed and given living accommodations elsewhere for the time being. The whole subject, including a consideration of the general character and proportions of barracks for this purpose, has been discussed at length in the two previous reports, and the arguments in support of the contention could not have been more convincing. The same statement is believed to be true regarding the presentation of the pressing need of providing ample modern and sanitary housing facilities for those of the enlisted force who are retained on shore for a longer or shorter period before being assigned to cruising ships. The indicated improvement in both directions is a matter of sufficient importance from the bureau's view point, for enlightened hygienic and sanitary reasons, to warrant its repeated recommendation. It merits the department's serious consideration and, in the hope that such may be accorded it, reference is invited to the discussions under this head which appeared in the reports for fiscal years 1907 and 1908. It is unnecessary to reiterate any portion of the arguments. It will be enough here to mention the additional evidences of the need which have come to light during the past year. Numerous epidemics of more or less severity have occurred on several of the receiving ships, notably the U. S. S. *Hancock* at the New York yard, which, owing to the development of scarlet fever in epidemic form, was finally placed under quarantine restriction on February 4 for a period of three weeks, and again on April 10 for a like period, to the great inconvenience of the service in certain very important directions. The U. S. S. *Missouri*, at the navy-yard, Boston, Mass., in the early spring of this year furnished a very striking example of the great desirability of taking crews off cruising ships while at yards undergoing extensive repairs. In this case, also, scarlet fever became epidemic on board and not only threatened the health of the whole ship's company, requiring unusual and drastic measures to check the spread of the disease, but stopped all repair work in the preparation of the ship for sea and delayed its resumption for eleven days on account of quarantine and certain comprehensive, routine, sanitary procedures which were established and continued well beyond the incubation period of the disease for the purpose of freeing the ship of all possibility of harboring the infection. That such occurrences constitute events of moment even in times of peace, both as entailing financial loss and interfering with service efficiency, can not be denied. They are, however, not fatal to the successful operation of the navy, as might in all probability be the case in time of war, and it is just such a disaster against which the bureau is seeking to enlist the department's interest. It is recognized that epidemics of various contagious or infectious diseases are perhaps just as likely to threaten the occupants of barracks buildings, but it is maintained that, if these are properly constructed, epidemic diseases are not so apt to gain a foothold and are much more easily checked in their progress. Moreover, on ships, owing to the open spaces and other features of construction, together with the unavoidable administrative communication with their every compartment and the close contact of the members of their crews, which make effective segregation of the sick and suspects impossible, an epidemic is a serious matter. In modern barracks, on the other hand, the management of an epidemic is a much simpler problem and, with better facilities for the isolation of groups of men and for the disinfection of personnel and clothing, the establishment as a whole would probably escape a totally disabling quarantine.

SPECIAL RELIEF WORK.

International medical service.—During the period embraced by this report the Medical Department, as in previous years, has had occasion to cooperate with other branches of the navy and government service and with national organization in the relief of suffering and distress among the victims of communities abroad which were visited by catastrophies of great magnitude. Aside from the gratification which comes from a consciousness of having complied with the dictates of humanity in rendering such aid, the prompt action of the navy in contributing its good offices to this humane work must be appreciated not only by the immediate beneficiaries but by the people of the United States and the world at large.

Upon the occurrence of the earthquake at Messina, Italy, the United States Atlantic Fleet was passing through the Suez Canal to the Mediterranean, en route home, and as mentioned in last year's report, the absence of the hospital ship deprived the navy of an opportunity to be of unusual service to the sufferers of that disaster. However, a number of ships of the fleet were dispatched to the scene as soon as possible, the first among which was the U. S. S. *Culgoa*, carrying with her, by order of the commander in chief, all medical stores from every ship that could be spared. The *Culgoa* arrived at Messina January 6, 1908, and immediately began to distribute the medical supplies for the relief of the sufferers, the stores thus expended from January 8 to January 15, 1909, amounting to $1,335.10, varying quantities being placed in authoritative hands to the credit of relief committee headquarters, steamship *Genova*, U. S. S. *Yankton*, steamship *Bayern* (chartered American Red Cross ship), U. S. S. *Scorpion*, steamship *Egitto* (Italian Red Cross ship), and Italian Hospital, Scilla, Italy. The bureau is advised only of the good service which Asst. Surg. G. M. Olson, medical officer of the *Culgoa*, and Asst. Surg. C. E. Rhoades, medical officer of the *Scorpion*, rendered at this time, but no doubt is entertained that the medical officers of the other ships which reached the scene of the disaster later acquitted themselves creditably and to good purpose.

The U. S. S. *Celtic* reached Messina on January 20, 1908, having sailed on short notice from New York with the relief of the victims of the earthquake disaster as her objective. For this purpose she had been diverted from the service originally planned for her, which was to meet and replenish the diminishing supplies of the fleet. Among the stores so destined was an unusually generous supply of medical provisions, an extra stock particularly of surgical dressings, having been obtained from the supply depot during the last hours before sailing, and all these, like the other stores on board, were made available for use at Messina. The ship sailed with one medical officer on board, but was joined at Gibraltar by a second, Asst. Surg. Martin Donelson, who continued with her to Messina and there remained to assist in the relief work and as medical officer of the detachment that was to take charge of the house construction after the *Celtic* left for the United States.

Doctor Donelson was ordered home on June 10, 1909, and his report of service shows the excellent work that was done by all and the deep appreciation that was evinced on every side. His detailed report will be published in the Naval Medical Bulletin. Briefly, most of the stores on the *Celtic*, medical and others, were carefully distributed, some going to the Italian hospital ship *Savoy* immediately upon reaching Messina and the balance to the various small towns along the coast. The medical stores were invoiced and delivered directly to the medical officers of the Italian army, from whom receipts were obtained. Doctor Donelson was relieved from duty on the *Celtic* and put in charge of the small steamer and barges to assist in the distribution, and he reports that in every instance the stores were urgently needed. During this time Acting Asst. Surg. F. W. Thompson conducted a clinic on board, giving medical assistance and first aid to all who came on board, and he also issued supplies to several charitable organizations that were hampered in their efforts to relieve suffering by a lack of material with which to work. By this time the seriously wounded had been transferred to hospital accommodations in Sicily and Italy, and the medical work performed by the United States Navy from that time on consisted largely in the treatment of the slightly injured who remained and the sick and casualties among the soldiers, laborers, and natives. From the time the camp was established until the work of house building was completed and the medical equipment, instruments, and other property was packed to be returned on board the *Scorpion* early in June, the dispensary was incessantly busy, and, although its personnel consisted of but Doctor Donelson and Hosp. Steward Charles Thome, a large territory was covered and a phenomenal amount of good work seems to have been accomplished, including a broad range of both medical and surgical cases. Medical assistance was not denied to anybody, and the patients were all most grateful, exhibiting their appreciation in many ways.

The health of the camps was exceedingly good, only minor affections being recorded.

On April 26, 1909, a terrible explosion occurred on the Italian submarine *Foca* in the Bay of Naples, Italy, the victims of the unfortunate accident including everybody on board, all of whom were more or less injured and many killed outright. A number of officers and members of the crew of the U. S. S. *Scorpion*, which was lying close aboard at the time, were the first to arrive on the scene with aid, and in a very efficient manner cooperated in the work of saving the surviving victims. It is reported that, among those of the *Scorpion* relief party, Asst. Surg. C. E. Rhoades especially distinguished himself by his promptness and his ability, both executive and professional, and that he was of the utmost assistance to the Italians by his untiring devotion to the needs of the injured—first on the scene of the disaster and then in the dressing station at the Royal Arsenal, where he gave valuable surgical attention to the numerous wounded that had been carried thither. In acknowledging the service of the *Scorpion* on the occasion of this sad event, the commander in chief of the Second Naval District made pointed reference to the work of Doctor Rhoades.

Following the Armenian massacres in and about Adana, Turkey in Asia, which occurred in April of this year, the U. S. S. *North Carolina* and the U. S. S. *Montana* were ordered to proceed to the relief of those entitled to the protection of the United States and others who were suffering or in danger of harm in the disturbed district of that country. After the arrival of these ships at a neighboring port a medical relief party was organized on the *North Carolina*, consisting of Asst. Surg. J. T. Miller and four hospital corps men, which, on May 17, 1909, proceeded to Adana on temporary duty for the purpose of rendering such assistance as might be necessary in the care and treatment of the wounded Armenians at that place. This party remained there carrying on the designated humane work until May 30, 1909, when it was relieved by another medical relief party from the U. S. S. *Montana*, consisting of Asst. Surg. L. W. McGuire and two hospital corps men, which continued the work of the first until June 10, 1909. Both of these parties were equipped with medical and surgical field cases, a large quantity of dressings and bandages, extra medicines, and disinfectants, also a supply of rations and distilled water, and during the short periods of their service they accomplished a great deal of important professional work, to the comfort and benefit of a large number of sufferers and to the utmost assistance of the relief committee already on the ground. The detailed reports of both these officers contain interesting and valuable information, and they will be published in the Naval Medical Bulletin. It is perhaps sufficient to further say in this report that, aside from the large number killed and wounded to be given attention, the amount of sickness among the survivors—men, women, and children—was enormous, representing a broad range of diseased conditions, and that epidemics spread rapidly. Camps and temporary hospitals were established for the purpose of treatment, isolation, and shelter, as practically all the houses in the Armenian quarters had been burned, and, although the medical and surgical work was done under most adverse circumstances, it would seem that the part played by these two medical relief parties was most creditable to themselves and the service.

SPECIAL DISEASES.

Affections which were responsible for the greatest amount of disability during the calendar year 1908 may, from the point of view of time at which they occurred, be classified as follows; this grouping lends itself particularly to calling the attention of officers concerned with these various periods of the enlisted men's career to the conditions which should be anticipated or avoided:

A. Affections which depend upon possible predisposition: (1) Unsatisfactory physical examination upon enlistment, (2) lack of statement of recruit as to medical history.

B. Affections depending upon environment of recruits: (1) Contagion, (2) climatic exposure, (3) unaccustomed life, (4) venereal exposure.

C. Affections depending upon duties aboard ship: (1) Exposure, (2) injuries.

D. Affections depending upon exotic exposure: (1) Usually considered "in the line of duty," (2) usually considered "not in the line of duty."

E. Affections depending upon special conditions of service: (1) Isolation and climate, (2) diet, (3) long service.

A. (1) Twelve thousand and twelve sick days attributable to hernia covers the time that 195 cases were awaiting or undergoing operation for its radical cure and 109 cases other disposition, and the figures suggest that many recruits must be predisposed to rupture, although the condition has not been recognized upon examination for enlistment. Similar views might be expressed with regard to a large number of sick days due to ***tonsilitis, hemorrhoids, varicocele, palpitation of heart,*** and ***defective vision; enlarged tonsils,*** *weak eyesight*, any tendency to *piles*, or *irritability of heart action*, and even moderate *varicocele* should evidently be most carefully excluded; Passed Asst. Surg. B. F. Jenness, in the United States Naval Medical Bulletin, has well shown the menace to the service caused by enlarged tonsils; ordinary *contagious diseases* which are in their incubation periods but which have not developed can not, of course, be detected; a few cases probably contract infection on trains en route to the station; it is probable that beginning very slight *tubercular* involvement of the *lungs* and obscure *heart affections* which develop after enlistment would be detected if the examining room of some of the recruiting offices had a less noisy environment. The discontinuance of traveling recruiting parties with the frequent attendant rush of work has doubtless favored the decrease in the appearance of these conditions following enlistment.

(2) It is submitted that the statement already required of the recruit to the effect that he has never been subject to fits, internal *piles*, *stricture*, or *concealed disease* might well be made to include *incontinence of urine*, any previous attack of *appendicitis*, and *nervous* or *mental disease* in family.

B. (1) The greatest number of sick days due to *contagious disease* among recruits has been caused by *mumps*, *measles*, *tonsilitis*, and *influenza*, *mumps* accounting for 8,686 and 8,053 days of treatment in shore stations and hospitals, respectively; the incubation period of the last-named disease is so long, extending even to 25 days in some cases, that it is bound to appear unless, from time to time, practically the entire service is segregated; the knowledge of the usual absence of seriousness of mumps and its complications doubtless also operates to discourage prophylactic measures. *Measles*, next to smallpox among the unvaccinated, is considered the most highly contagious disease with which we have to deal, and its occurrence under present conditions of liberty practically takes it out of the class of preventable diseases so far as the navy is concerned. A most creditable showing is made, however, in the diminution of sick days due to measles on shore stations and in hospitals from 11,982 in the year 1907 to 7,143 during 1908; this reduction is attributed to more effective segregation of recruits for the 3 or 4 weeks following their arrival at training stations. The occurrence of *tonsilitis* and *influenza* is inherently associated with climatic exposure and the congregating of men in limited quarters; it is probable that if the training stations of Newport and San Francisco were located farther south there would be a substantial decrease in these diseases.

Diphtheria and *scarlet fever* were about twice as prevalent as in 1907, yet their incidence (57 and 67 cases on shore, respectively) is well within the minimum to be reasonably expected from exposure while on liberty.

Cerebro-spinal meningitis on shore gave but 658 sick days as compared with 1,351 during 1907, these being about evenly divided between the training stations at San Francisco and Newport and the hospitals at Mare Island and Philadelphia, the neighborhoods of which have shown the disease to be more or less endemic. Surgeon Field has submitted for publication in the Bulletin reports of his observations of the cases occurring at San Francisco. The Flexner-Jobling serum was used with apparently favorable results.

Disability due to *middle ear* and *kidney inflammation* may in some degree be considered as sequel to these contagious diseases, and 4,627 sick days in hospital for the former trouble should be considered as of great import before dismissing them as harmless affections of childhood.

Itch continues from year to year to be the same regrettable reflection upon the cleanliness and habits of newly enlisted men; its eradication depends upon the speedy inculcation of the recruit to a routine of the strict personal cleanliness which is so characteristic of the experienced man-of-war's man. Some 335 cases of scabies have required 5,289 days of treatment, which shows that it takes 16 days to cure the average case; importance arises only from this loss of time to the Government and the interruption or delay in the recruit's course of training.

The records of the three naval training stations show that 33 cases of *tuberculosis* developed among their personnel. It would seem that even this small number among the thousands of recruits ought not to appear so soon after supposedly effective physical examination. It has occurred to the bureau that as soon as the harmlessness of ophthalmic or cutaneous reaction upon the apparently healthy has been definitely demonstrated the requirement of such an aid to diagnosis would be justified as soon as recruits have recovered from vaccination at training stations in order to remove from the service those in whom the disease is so latent or quiescent as not to be detectable by the usual methods of diagnosis. It is manifestly quite as much to the interest of the individual as it is to the Government to discover the disease at the earliest possible moment.

(2) At the Newport, Norfolk, and San Francisco training stations there were, respectively, 36, 19, and 37 cases of *pneumonia*. With only one-half as many men, the San Francisco station had about twice as many cases as Norfolk, and even more than had Newport with nearly twice the complement. The complications of pneumonia are frequently serious and involve long periods of disability. The disease continues a notable factor in cruising ships, although modern sanitation seems to have averted the danger of its appearance in epidemics.

Acute bronchitis is of moderate incidence and is doubtless not always differentiated from influenza.

(3) Palpitation of the heart throughout the navy resulted in 2,706 sick days and 43 discharges from the service. This condition developed in most cases among recruits during the first year of their enlistment, and with the exception of certain cases which should have been detected at the recruiting station is considered to arise from unaccustomed, although by no means unwarranted, exercise and environment, to which the physique of certain young men does not seem able to adapt itself. Tobacco may have some influence in its causation, although this does not frequently appear in the reports of individual cases. It is understood that the commander in chief of the Atlantic Fleet has recently prohibited the sale of cigarettes in ships' stores. In this connection Surgeon Blackwood, in his report from the *New Jersey*, says:

> This [climate], coupled with the injurious habit of cigarette smoking, has produced a condition in our men which the otherwise very healthy conditions of life are unable

to combat. The men are most susceptible to tonsilitis and other throat and bronchial affections, including middle-ear disease, and an appearance of pallor and general ill health is produced which caused most adverse comment by foreigners. It was no uncommon thing on this cruise to hear people ask: "Why are your men so pale and sallow? I should think that they would be brown and rosy." So they would be if the conditions of climate and some restrictions on cigarettes were attended to.

(4) Venereal disease at naval training stations was a comparatively minor cause of disability. This satisfactory state of affairs may be due to younger age, abundant occupation of mind and body, comparatively little liberty and spending money, and the absence of the worst influences which liberty parties encounter from cruising ships in many of our ports.

C. (1) On board ship *epidemic catarrh* (influenza) was one-fourth less frequent than during the former year, but occasioned a few more sick days. In his report on the U. S. S. *Kentucky* the medical officer states that this disease was brought on board before leaving Norfolk, and at no time throughout the cruise around the world was the ship free from it. "Most of the cases were comparatively mild and of bronchial and neuralgic types, although the intestinal type was not uncommon. Large numbers of men have been temporarily incapacitated by this malady. No certain causes connected with the ship could be given to account for its persistence, although the frequent changes in latitude and wetting of the decks have possibly served as exciting causes." The question of influenza bacilli carriers is pertinent, although the germs do not appear in large numbers without decided clinical symptoms.

Practically the same number of cases of *tonsilitis* appeared afloat as in 1907, and there were a few more days of disability. It is hoped that with the introduction of the "Gates's sanitary scuttle butt" the next report will show a decided decrease in this as well as other contagious diseases. *Diphtheria* and *cerebro-spinal meningitis* caused more sick days and one death each by reason of the fleet being at a distance from naval hospitals, where such cases were promptly sent during the preceding year. *Measles* decreased from 444 cases in 1907 to 127 in 1908; isolation wards and the presence of a hospital ship while the fleet was in the Pacific doubtless contributed toward restricting contagion. *Scarlet fever* was similarly less prevalent. An epidemic of the latter disease occurred on the U. S. S. *Nebraska*, but, fortunately, the *Relief* was at hand to take over the cases. *Mumps* occasioned about one-third more admissions and sick days, and thereby constitutes one of our temporarily most disabling affections. There was no notable change in the prevalence of *bronchitis*, which is relatively of less importance than in civil life, those cases which do not convalesce promptly in the navy being carefully watched in order to detect possible cases of early phthisis.

About one-fifth of 1 per cent of all persons in the service were admitted with *pulmonary tuberculosis*, which is about the same as during 1907 and less than during 1905 and 1906. With more reliable diagnostic methods and increasing care to detect the disease early, it appears that the actual number of cases developing in the navy must be slowly, but perceptibly, diminishing. The morbidity ratio remains high and will so continue because an increasing number elect to remain in the service under the best of care and in a most favorable climate rather than request their discharge to spend their remaining days at home. The longer these patients live and the greater the number recovering it is obvious that the number of patients and sick days (in hospitals) during a single year will increase.

Evidence has been accumulating for a number of years from carefully prepared autopsy statistics which tends to show that, undoubtedly, a very high percentage of human beings have had during some period of their lives a tubercular process, although not by any means necessarily extensive disease. Undoubtedly incipient phthisis has been frequently overlooked, and now, with the prevailing enthusiasm in diagnosis by tuberculin reactions, the finding of acid-fast organisms in the faeces or blood of possibly doubtful identity, rapid pulse, blood pressure, and diurnal temperature variances, and slight (frequently normal) differences in percussion note and respiratory sounds on the two sides of the chest, any tendency to overzealousness in this direction requires medical officers to guard against attaching undue importance to obscure signs rather than a general survey of the individual. It is not intended to minimize the necessity for the earliest possible diagnosis, or to postpone a decision until the laboratory can demonstrate the presence of the germs, but in certain cases the unjustifiable stigma of the disease must react unfavorably upon individuals who are sensitive yet otherwise physically robust.

An increase of over 25 per cent in disability from *articular* and *muscular rheumatism* on ships was due merely to men not being sent to hospitals during the long cruise, for there were actually 12 fewer admissions than during 1907 and 52 fewer than during 1906. Frequent change of latitude and climate and exposure to air currents and dampness between decks have usually been considered contributing causes of "rheumatism" on board ship, and as hygienic conditions improve the above noteworthy reduction is found.

Heat exhaustion is less prevalent than it was two and three years ago for the reason that the small cruisers with poorly ventilated firerooms have either been withdrawn from tropical service or placed out of commission. The opinion that heavy, muscular work has been a contributory essential, and that heat, humidity, and rapid cooling of the body are not the only causes, receives some support from an observation of Passed Asst. Surg. G. H. Hathaway, on the the U. S. S. *Cheyenne*, which now burns oil fuel; this officer shows that "during the standardization runs at maximum speed the temperature in the fireroom rose to 140°, which is about 10° higher than under previous similar conditions when burning coal. Nevertheless, in this higher temperature no case of heat prostration occurred, nor during the cruise has any member of the engineer's force succumbed to the heat. It is thought that the slight amount of physical exertion required to regulate the burners, as compared to passing coal, enables the fireroom watch to withstand a greater elevation of temperature. While cruising, the number of men on duty in the fireroom is reduced to about one-half those required for coal fuel, which is of some sanitary advantage." In this connection it should be noted that the firemen are required to wear smoked or colored glasses because "the necessity of gazing repeatedly at the white glare of the burners frequently produces a temporary blindness."

Surgeon Grunwell, from observations made of some 16 cases of heat exhaustion on the U. S. S. *Kentucky*, has, in the United States Naval Medical Bulletin for July, adduced the theory that the phenomena of cramps may be produced by toxines of the tetanus bacillus, which he believes might be absorbed from the intestine; the suggestion was made to awaken interest in a new direction in the study of this little-understood affection.

(2) Of injuries on board ship, *ear drums ruptured* by gun fire have been reduced from 19 to 7 within the year, and this result has doubtless been attained through the more general use of protective devices. *Burns* have increased and may be expected to so continue as the per cent of fireroom force becomes higher. The most notable accident occurred on the U. S. S. *Tennessee* on June 5, 1908, when boiler tubes blew out, filling a fireroom with live steam which scalded 13 men; upon immediate removal life was found extinct in 4, death being due to inhalation; 6 were taken to Angeles Hospital, Los Angeles, Cal., where 2 died on the following day; 1 other died on board ship, and the remaining 6 recovered. An increase in the number of *concussions*, *contusions*, *fractures*, *dislocations*, *sprains*, and *wounds* generally is doubtless in part brought about by the ever-extending use of mechanical and labor-saving devices. The number of *ruptures* dropped about 30 per cent, but this is doubtless due to more careful examination at recruiting stations, for the best observers now feel that hernia in youth almost never originates "in the line of duty," relaxed, enlarged, or patulous inguinal rings constituting predisposition which should be excluded when applicants apply for enlistment.

D. (1) According to Medical Inspector Gatewood, *typhoid fever* stands ninth among the damaging diseases with respect to the navy.

For the previous ten years the incidence of typhoid in our service has averaged 4.65 per 1,000 of average strength. This figure is much higher than the incidence per 1,000 in the royal navy for 1907, which was about 1.52. The navy rate was higher than the average for the previous four years in the United States Army and slightly less than in the royal army. It is higher than among our civilian population generally. During 1908 there was a notable reduction in the number of cases (176, as compared with 249 in 1907), but this reduction occurred entirely in the fleet (57, as compared with 150 in 1907), the greater part of which was making the "around the world cruise" and distant from the typhoid endemic centers of the Atlantic coast, notably Norfolk, Va. For the whole service the admission rate was 3.3 per 1,000 of average strength, or 2.4 per 1,000 of all persons in the service during the year.

Typhoid on board ship may come from two sources. When in communication with the shore, the conditions which operate to spread the disease among civilians also may cause infection in the personnel of the ship. Milk, aerated waters, butter, ice cream, fresh vegetables, oysters, and other foods brought from shore may be the means of infection. The second source may be termed an internal one, and exists in the typhoid carriers among the personnel. If the bacilli carrier should be one of the cooks or mess attendants, it is easy to see the possibilities of a ship epidemic.

Three conditions obtain on board ship which serve to protect the sailor from contracting the disease from a shipmate, namely, the scarcity of flies, the immediate disposal of dejecta into the sea, and the drinking of distilled water.

In time of war, by reason of these conditions and in view of the lessened communication with shore, it is reasonable to infer that typhoid incidence would surely decrease, the very reverse of what always takes place with an army.

Surg. C. S. Butler in a recent report states that "by the conscientious application of two laboratory procedures it is possible to lower the incidence of typhoid and its mortality by at least one-half. Under present conditions this would result in an enormous saving of sick days per year. The first of these is the identification and proper control of the germ carrier in the ship's personnel; the second is the vaccination of officers and crew against typhoid. To identify carriers a properly equipped laboratory and some one familiar with modern bacteriological methods would be required;" and it is the bureau's intention that the hospital ship will carry out this work. Extended examinations of the dejecta of large numbers can not be practicably undertaken in the limited space for laboratory equipment on board a man-of-war. "It could not well be accomplished if feces and urine had to be sent to a central laboratory. In the identifying of 'carriers,' the discipline of the ship would lend itself admirably to controlling the men and making specimens available for examination, the lack of which is a great drawback among a civilian population. As to vaccination: The vaccine should be made in a portion of the laboratory set aside for that purpose which should be provided with its own apparatus, and under no circumstances should anything used in a general laboratory be used in the vaccine laboratory. The bacteriologist undertaking vaccine production should have nothing to do with the work of the general laboratory. The reason for the necessity of having a separate establishment is on account of the low temperature at which the vaccine must be sterilized and to take all precautions to prevent contamination with resistant (spore bearing) bacteria which would not be killed by a temperature of 60° C. With proper precautions and proper testing it would be possible to send out to the service an absolutely safe and potent vaccine which could be administered by anyone who understands aseptic measures. If the future increases the possibilities of vaccine immunity, the time may come when we can be assured against typhoid by vaccination at stated intervals as is now done against smallpox."

Vaccination has been undertaken among medical officers and hospital corps attending the sick sent to hospitals from the Atlantic Fleet in the recent outbreak of typhoid which followed the semiannual navy-yard repairs.

In his special report of July 21, 1909, the fleet surgeon says:

The following ships, which were repaired at Norfolk, Va., had the greatest number of cases:

	Cases.
Louisiana	6
Virginia	6
Minnesota	4

The following remained at Norfolk, Hampton Roads, or Philadelphia the length of time stated:

	Cases.
Wisconsin (Hampton Roads, 3 days)	5
Mississippi (Philadelphia, 17 days; Hampton Roads, 3 days)	4
Idaho (Philadelphia, 55 days)	2
Georgia (Philadelphia, 79 days; Hampton Roads, 8 days)	2
New Jersey (Hampton Roads, 1 day)	3
Vermont (Hampton Roads, 3 days)	1
Maine (Hampton Roads, 10 days)	2
New Hampshire (visited neither Hampton Roads nor Philadelphia)	1

On board the *Maine* both men attacked were on liberty together, ate in the same restaurant at Norfolk, Va., and were taken ill the same day, both proving severe cases.

On board the *Ohio* and *Kansas* no cases have developed to date: *Ohio* (Hampton Roads, 1 day), *Kansas* (Philadelphia, 77 days; Hampton Roads, 9 days).

None of the following vessels visited either Hampton Roads or Philadelphia: *Connecticut*, *Rhode Island*, *Nebraska*, *Missouri*, and no cases developed.

It is shown by the above tables that the ships remaining longest at Norfolk had the most cases, except the *Wisconsin* and *Mississippi*, which may possibly have had more liberty men ashore. The other focus of infection was Philadelphia, for years a typhoid center. I can not explain the exemption of the *Kansas* from the disease. The ships not visiting Norfolk or Philadelphia were free of the disease, as was the *Ohio* which remained but one day at Hampton Roads. The total number of cases in the fleet to date is 34, of which probably 25 or 29 were contracted at Norfolk.

It is gratifying to note that in spite of the visit of the fleet in Asiatic waters the admissions and sick days for *dengue* fever dropped about 40 per cent from those of the previous year; it might be thought that the better appreciation of the prophylactic value of the mosquito net on the part of men sleeping ashore has led to this reduction, but the incidence of *malarial diseases* has remained the same and the sick days occasioned thereby increased 19 per cent. The admission rate per 1,000 average strength has been about 36. It is probable that this high incidence for a theoretically preventable disease will not be greatly lowered unless enormously extensive drainage and other mosquito prophylactic measures are undertaken in regions where the country either has no administrative control or is yet but remotely interested commercially. Men must have some liberty where malaria abounds and the infective anopheles mosquito will eventually feed upon the majority, however faithfully they use their protective nets at stations and camps.

Simple continued fever has diminished, but this uncertain affection will not disappear until problems in etiology and the classifications depending upon them are better worked out.

Dysentery incapacitated comparatively few persons in the navy (105 in 1908 as compared with 95 in 1907), yet the aggregate loss in time of 3,549 sick days demands that it be recognized as serious and more or less permanently disabling; the sick days dropped 16 per cent and there was but one death. Decided advances in the treatment of dysentery during recent years have tended to diminish its ultimate damage.

Epidemic catarrh being largely a ship contagion due to crowding and exposure has already been referred to; for the entire service there were 132 fewer cases, yet in 1908 the affection has been more disabling, giving 9,446 sick days as compared with 8,050 for 1907; this is at present a comparatively mild and not the permanently damaging disease which appeared in great waves twenty years and more ago, yet its complications too often leave the youthful impaired and shorten the careers of older officers and men. Modern sanitation seems to lack adequate methods to eradicate a contagion so cosmopolitan.

Aside from *skin diseases* which are essentially contagious, considerable incapacity for duty arises from four affections which, however, by no means always arise from causes acting on the surface of the body. *Abscesses*, *boils*, *ulcers*, and *cellulitis* disabled 1,752 persons during the year and the loss of time to the service amounted to 17,936 sick days; some of these represent predominating symptoms of constitutional diseases which had their primary lesions elsewhere, a considerable number were distinctly of traumatic origin, while others may be indirectly attributed to the time-worn influences of diet and climate; the last indefinite group becomes smaller as the allowance of fresh water becomes more liberal and as the attainment of bodily cleanliness depends less and less upon the saving of once, twice, or thrice used water in buckets, which necessary custom of former years was the means of transmission of boil infection wrongly attributed to scurvy.

Of the 36,100 sick days caused by six *contagious diseases* (diphtheria, cerebro-spinal meningitis, measles, mumps, scarlet fever, and smallpox) over 60 per cent were credited to mumps, which has already been referred to under "B. Recruits," and, with the exception of 476 cases of measles and 83 of scarlet fever, the comparative and intrinsic loss of time has been small.

The occurrence of even 11 cases of *smallpox* is regrettable considering the all but absolute means of prevention which we have in repeated vaccination; 7 developed on board ship and followed exposure in ports where the disease is more or less endemic, and the opponents of vaccination might well be asked to consider why so few out of the thousands undoubtedly exposed contracted the disease.

Extracts from two reports will show why vaccination has not kept the service entirely free of smallpox: The senior medical officer at San Juan, P. R., under date of March 31, 1908, says:

> The marines on duty at this station were examined in January for evidence of successful vaccination. Forty-seven men were considered to be unprotected. Of these, seven had never been vaccinated before or after enlistment, and eight had been vaccinated some years prior to enlistment, but not since. I judge from this evidence that under the present system of recruiting marines and the use of civilian medical examiners, the required vaccination upon enlistment is too frequently omitted.

Surg. M. F. Gates of the *Charleston* reported:

> In April, owing to the existence of smallpox in Vallejo and San Francisco, general revaccination was ordered by the commander in chief, Pacific Fleet, and with the exception of the squadron commander, all on board the *Charleston* were vaccinated.
>
> A telegraphic request for virus was made on the bureau, but before it arrived a supply obtained from the Benden Laboratory, Berkeley, Cal., was furnished by the fleet surgeon, Pacific Fleet, and was employed for nearly all the work.
>
> This virus seemed very active and gave a percentage of successes in Class I of 12.6; Class II, 76.4; and Class III, 40. Slight successes are included among the "successful" results.
>
> The classification of results in cases partly or almost wholly protected by previous successful vaccination must be subject to wide variation as seen by different vaccinators, as the 697 vaccinations made gave every possible degree of reaction from that of a simple abrasion to an acute inflammation with a small slough.
>
> Thirty-six cases were admitted to the sick list for relief from duty on account of swelling, pain, and fever, and it was observed that of these, 7 had been noted, when vaccinated, as presenting very poor, poor, or indifferent scars; the remaining 29 presenting no scars of successful vaccinations.
>
> Two of these men stated that they had never before been vaccinated, though it is difficult to understand how they could have so long escaped under service conditions. The others had been tried unsuccessfully from one to seventeen times. No case noted at vaccination as presenting a good scar required admission to the sick list or relief from duty.
>
> The 6 cases of Class I which were unsuccessful include one man transferred without a second attempt being previously made; two slight successes on second attempt; and the fourth, unsuccessful after three attempts, has been since transferred.

(2) Without repeating the distressing details of the ravages of *venereal disease*, which have unfortunately, but justly, occupied a most prominent position in each previous annual report, the bureau

contents itself with the statement that venereal disease did, in proportion to numerical strength, the same amount of damage as in 1907, and prefers to utilize the accustomed space in showing what is being done to remove this menace to the health of the personnel. The following table indicates that, while there were more admissions for the original infections, there were fewer complications.

Disease.	1907.		1908.	
	Total admissions.	Sick days.	Total admissions.	Sick days.
Adenitis inguinalis (venereal)	743	21,840	642	17,538
Arthritis gonorrhoica	161	8,061	161	8,051
Chancroid	554	6,311	665	6,570
Epididymitis	502	7,796	501	8,082
Gonorrhea	2,274	13,912	3,015	18,229
Ophthalmia gonorrhoica	19	992	30	1,016
Orchitis	373	6,984	450	8,110
Syphilis:				
Consecutiva	785	31,105	892	34,067
Primitiva	96	1,551	109	2.383
Urethra strictura	57	1,691	49	2,480
Total	5,564	100,243	6.514	106,526

During the year a distinct and determined advance has been made and, through the hearty cooperation of the Department and the Bureau of Navigation, a particularly vigorous campaign is being waged against venereal disease. Venereal prophylaxis has been practiced quietly and more or less extensively for some years upon certain ships according to the ideas of individual medical officers, but until recently no concerted action, supported by the weight of active and interested authority, has materialized.

Following an inspection of the U. S. S. *Galveston* on August 29, 1908, Passed Asst. Surg. J. Stepp made a valuable and appreciative report upon prophylactic measures which had been carried out for fifteen months by Asst. Surg. G. M. Olson, the medical officer of that ship. Measures taken, briefly stated, were as follows:

(*a*) Members of the crew on the restricted list were not given liberty.

(*b*) Members of liberty parties upon return to the ship reported at the sick bay and made a statement as to exposure which was recorded as "no" or "yes" on the liberty list.

(*c*) Those exposed were given special cleansing and antiseptic treatment in a separate compartment under the supervision of a specially trained hospital apprentice.

(*d*) Those who denied exposure and subsequently developed infection were punished by the commanding officer.

The report states that "there have been but very few occasions for punishing the men, as practically the entire ship's crew have willingly cooperated in carrying out the measures." Under the above system the percentage of venereal disease on the *Galveston* has been reduced over 75 per cent. From October 1, 1906, to the latter part of May, 1907, when the above measures went into effect, there were 4,003 liberties, resulting in 87 cases of serious venereal disease, besides a large number of chancroids. From May, 1907, to August 21, 1908, there have been 5,441 liberties, which resulted in 28 cases of serious venereal disease and practically no chancroids.

Doctor Stepp recommended the uniform adoption of similar methods upon all ships of the station. The importance of this report received prompt recognition by the squadron commander, who highly commended the action taken and referred it to the commanding and medical officers of other ships for information, comment, and recommendation. Rear-Admiral Harber forwarded all correspondence to the department and recommended "the early and earnest consideration of the Bureau of Medicine and Surgery," and this was given.

On December 17, 1908, the department approved "the promulgation in all vessels of the fleet of full information concerning prophylactic treatment, the instruction to be given by medical officer of the ship. * * * Disciplinary action, looking to the enforcement of this treatment on board ship, is left to the discretion of the commanding officer."

This bureau considers that the three above-named officers are deserving of the highest commendation for courageously formulating a plan of action, in the face of probable unfavorable criticism from well-meaning but misguided reformers at home, because it not only hopes, but believes that the work begun will prove the turning point and establish the lasting retreat of this enemy which, "during the past year (1907), if applied solely to the force afloat, would have operated to render entirely inactive for over a month three battle ships with a complement of 1,000 officers and men each."

Subsequent reports during 1908 from ships of the Asiatic Squadron showed the strong approval of all commanding officers. On the *Galveston* the medical officer estimated the reduction as between 90 and 95 per cent. Of 281 exposures followed by prophylactic treatment there resulted no syphilis or chancroid, and only two (who overstayed liberty) developed gonorrhea. The commanding officer of the *Concord* stated that it was "almost impossible to estimate the benefits the Government has received from this simple matter, and I am sure that every man in the ship is behind me in carrying out the prescribed line of treatment."

The value of enforced over voluntary prophylaxis is well shown by the report from legation guard at Peking, China: For the five months preceding November 1, 1908, there were 56 cases of gonorrhea and 35 of venereal sores, while during the subsequent five months of enforced treatment there were but 14 of gonorrhea and 10 of venereal sores, the mean strength of the command being 143 and 141 for the respective periods.

A summary of an exhaustive report of the medical officer of the *Charleston*, dated April 12, 1909, shows that since January 1 there had been four liberty periods in the Philippines and China, and 3,828 liberties; 427 of this number failed to report, and 32 developed disease, 14 as having overstayed liberty; 1,396 of this number who reported admitted exposure were treated, and but 1 developed disease; 2,003 of those who reported denied exposure, were not treated, and 6 developed disease. The commanding officer truly indorsed that "the showing here made is remarkable, both in the absolute prevention of venereal disease (47 cases all told when 3,828 had been on liberty), and in a more striking way by the results tabulated for the men who admitted exposure and took the treatment (1 case in 1,396 exposures). The wisdom of adopting this treatment is entirely vindicated by these results of more than three months' trial."

Under date of June 11 an attempt was made to classify the causes of 77 cases of venereal disease (gonorrhea 32, chancroid 45, syphilis 0), resulting from 6,083 liberties from the *Charleston* during five months. Twenty-six failed to report, 13 denied exposure and were not treated, 19 overstayed liberty and did not receive timely treatment, 12 had extended liberty, and in 7 prophylaxis apparently failed from necessarily hurried treatment upon return of great numbers just prior to important work or from being under the influence of liquor.

On the *Culgoa* at Colombo, Ceylon, there were 25 exposures followed by prophylactic treatment, and no disease resulted.

Passed Asst. Surg. E. O. J. Eytinge reports on the U. S. S. *Ranger* the result of treatment after 39 liberty parties between Olongapo, P. I., and Portsmouth, N. H.; there were 256 admitted exposures in either Singapore, Colombo, Cairo, Port Said, Naples, Villefranche, Gibraltar, or Bermuda, including some of the most notoriously infected ports of the world, without the development of a single case of venereal disease. During this same cruise there were 693 instances in which the men stated they had not been exposed.

The medical officer of the *Concord* reported that during the first five months of prophylaxis "we have not had a single new case of gonorrhea or syphilis develop, and only a very few cases of chancroid."

Favorable results have also been reported from the *Albany*, *California*, *Cincinnati*, *Cleveland*, *Helena*, *Indiana*, *Maryland*, *Montana*, *Raleigh*, *Rhode Island*, *West Virginia*, *Wilmington*, and *Villalobos*.

The bureau and the officers of several ships have particularly called attention to the need of a special compartment for prophylactic treatment; one states that "there is no available room at present except in the sick bay, and it is unjust to the sick to disturb them in the manner they would be if 40 or 50 venereal patients were treated in their presence three times a day." After some liberty parties upward of 100 have been cared for. The efficient manner in which this question of private space has been overcome by improvisitation by officers of the Asiatic Squadron is a source of much gratification to the bureau. Undoubtedly after the efficacy of the practice has become widely recognized such a compartment will be provided in ships of the future or those undergoing renovation.

The practical utility of the "restricted list" continues a question among a very few officers, yet it is submitted that the navy should show a good example in this regard.

The naval service is imperiled far more by venereal diseases than by all the other infections against which quarantine is now acknowledged to be a public necessity. The navy does not seriously menace civil communities by virtue of the quarantine exercised in the majority of ships, but civil communities do threaten the navy in view of our deep-rooted Anglo-Saxon prejudice against at all recognizing officially the existence of the results of sexual immorality.

As an adjunct to the routine treatment of gonorrhea, Surg. W. F. Garton has reported in the Bulletin strikingly favorable results from the use of gonococcic vaccine in 14 unselected cases; four chronic gonorrheas and one complicated with arthritis recovered completely in about five weeks.

That the cause is worthy of the fight now begun is well shown in the table following, which indicates the damage due to syphilis alone during the ten-year period ending December 31, 1908.

Year.	Admissions.	Deaths.	Sick days.	Number which sick days would represent as constantly disabled throughout the year.
1899	406	2	15,415	42.2
1900	465	1	21,791	59.3
1901	546	2	21,656	59.3
1902	606	0	26,794	73.4
1903	816	0	34,11[illegible]	93.4
1904	880	0	32,389	88.3
1905	981	5	39,632	108.5
1906	1,147	0	41,248	113.0
1907	881	1	32,656	89.2
1908	1,001	2	36,645	100.4

Total sick days in ten years	302,338
Average constantly sick	82.7

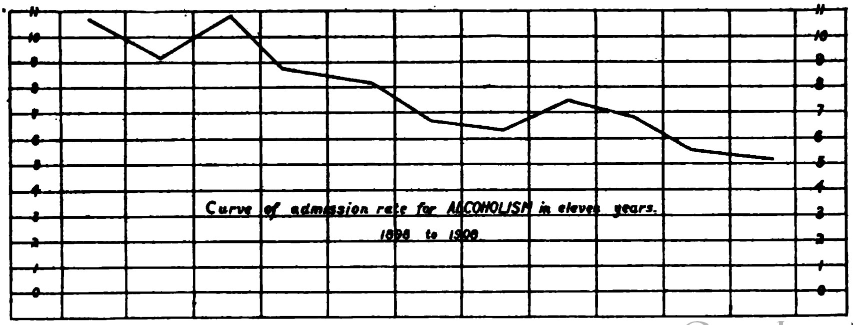
From the above is adduced the fact that the Government not only loses the services, but must defray all the expenses of illness of approximately 1,000 men for an entire month out of every year on account of this single venereal disease.

Itch has been discussed in this section under B (1); the number of cases appearing on shipboard is about the same as at shore stations, but of course the admission rate is much lower.

The damage from *neuritis* and *chronic gastric catarrh* is diminishing, as would be expected from the decline in admission rate for *alcoholism,* which is shown in the accompanying table.

Statistics of alcoholism in navy for 1908 in comparison with previous ten years.

Year.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Average strength (medical returns)	23,038	20,113	22,977	26,101	30,249	36,535	39,450	39,620	41.690	44,083	50,984
Admissions:											
Afloat	205	155	160	162	166	159	159	202	193	158	128
Shore stations	38	38	81	65	75	81	91	82	88	87	141
Hospitals	1	....	5	3	7	5	10	4	13	7	12
Total	244	193	246	230	248	245	260	288	294	252	281
Sick days:											
Afloat	546	485	520	511	479	456	443	700	602	437	349
Shore stations	69	109	198	165	229	345	365	276	397	331	430
Hospitals	625	198	766	446	247	454	537	458	986	762	1,034
Total	1,240	792	1,484	1,122	955	1,255	1,345	1,434	1.985	1,530	1,813
Deaths	5	4	4	4	8	2	3	2	8	6	8
Admission rate per 1,000.	10.6	9.6	10.8	8.8	8.2	6.7	6.6	7.3	7.1	5.7	5.5



This table indicates that ship life discourages the abuse of alcohol, while admissions and sick days tend to increase among the force stationed ashore, although the percentage of the latter class is known to become lower each year. The total damage varies but little when deaths and disabilities are considered together, but the whole service and the country at large must feel greatly encouraged even if not yet proud of the creditable fall in the admission rate, which is but about half what it was eight years ago and diametrically the opposite of what has occurred in the army. The army admission rate for 1907 was more than six times as high as that of the navy. The drinking of wood alcohol from linoleum cement caused 13 serious cases of illness (3 of which died) on the U. S. S. *St. Louis* in January, 1908.

E. (1) The four classes of *mental disaases*—dementia, mania, melancholia, and paranoia—furnished 154 admissions and 4,856 sick days, which represent but little lower admission and damage rate than during 1907; admissions for *neurasthenia* dropped from 127 to 111, the difference being among the force afloat. Isolation, distance from congenial environment, and climate have usually been considered to be contributing influences in the excitation of mental affections, but the great majority may be traced to heredity, disease existing prior to enlistment, and indirectly to alcoholism and frequently syphilis. The above figures probably indicate very nearly the minimum which the service can expect to attain under existing methods of recruiting and peculiar conditions of service.

Neuritis has already been referred to, but the fact must not be lost sight of that climate and defective bodily nutrition are occasionally causes which are beyond the control of the afflicted.

(2) It is difficult to say what diseases and to what extent they are incident to dietetic causes, but three affections will be mentioned which have undoubted association with constipation, and this in its turn is favored by the restricted space and exercise and lack of bulk and fresh vegetables often attending life at sea.

Admissions for *appendicitis* (313) increased 33 per cent over those of 1907, and seven deaths resulted as compared with but one during the previous year. One hundred and eighty-one cases were operated on, with three deaths resulting from already advanced peritonitis; there occurred 11,210 sick days. Unfortunately the etiology of this all too prevalent affection can not be readily determined, and thereby any efforts to prevent it are decidedly handicapped.

Hemorrhoids occasioned 252 admissions, 4,676 sick days, and 135 operations, all of those operated being discharged as cured.

Chronic gastric catarrh frequently develops among the engineer force, and irregularity of hard labor and fatigue in relation to meal times from daily change of watches, with excessive perspiration and ingestion of water, favors constipation and diarrhea. Alcohol is, of course, a common cause of chronic catarrh.

(3) Long service in any pursuit of life is apt to render an individual prone to special disorders depending upon the nature of the work and condition of environment, and it is found that the man-of-war's man is no exception in this respect; at best his life is a hard one and the work, exposure, and habits which are incident to its demands age him prematurely; after twenty years' service he is prone to develop *rheumatism, heart* and *kidney disease*, and if perchance he contracts *pulmonary tuberculosis* a fatal issue is not long delayed. These dis-

eases, together with *enlarged prostate glands*, varicose veins, and *cirrhosis of the liver*, do not now show the admission rate of former years because the personnel has expanded so rapidly and the younger men are in even greater majority, but the comparatively few who remain to serve twenty-five or thirty years and the many who are seen to physically fail after twenty years furnishes abundant argument for approximating the retirement age to the last-named period; this applies particularly to men of the engineer force.

Chart showing Comparative Incidence of Typhoid Fever —— and Tuberculosis ...... at the More Important Stations 1909. Admission rate on Cruising Ships not included.

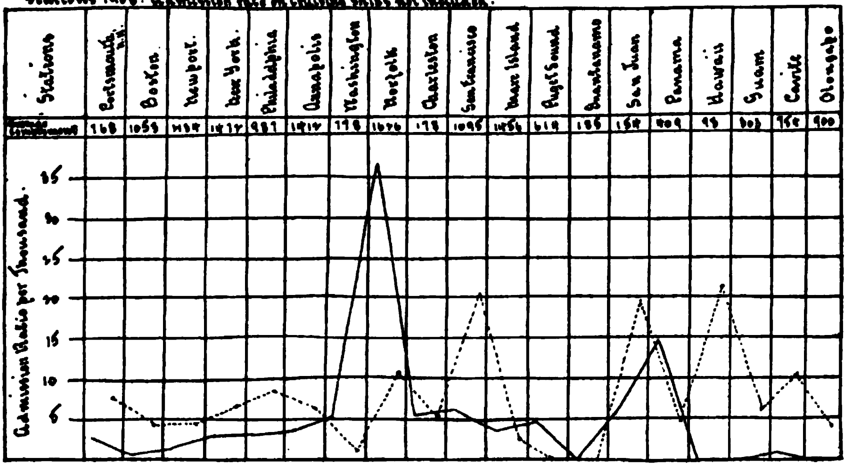
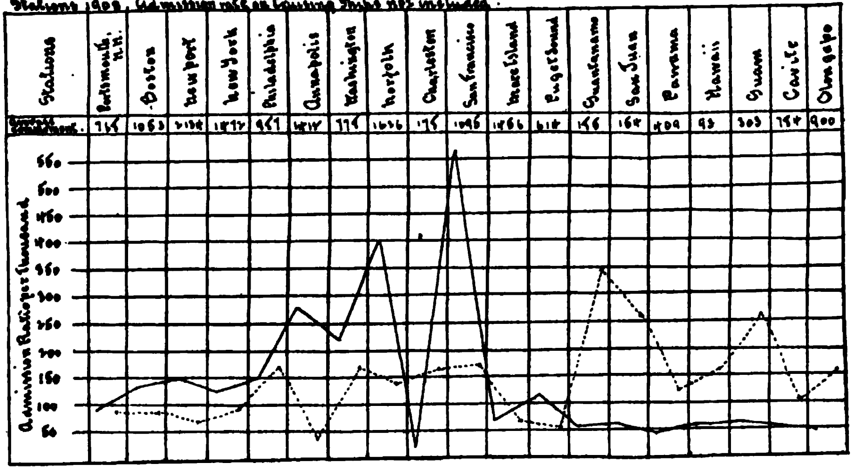


Chart showing Comparative Incidence of Contagious —— and Venereal ...... Diseases at the More Important Stations 1909. Admission rate on Cruising Ships not included.



(Contagious Diseases - Cerebro-spinal meningitis, Diphtheria, Influenza, Itch, Measles, Mumps, Pneumonia, Scarlet Fever and Tonsilitis)

The accompanying charts declare the prevalence of infectious diseases at the more important shore stations and in a large degree serve as a basis for comparison of local health conditions. However, in a study of these charts it should be borne in mind that at the three training stations there are large groups of recruits more susceptible to any contagious disease which may be introduced than are the men of longer service on receiving ships who have become acclimated and developed powers and habits of resistance. The exanthemata and catarrhal diseases of the respiratory tract were rife at San Francisco, Norfolk, and Annapolis, while these affections seem to have been kept under control at Newport in spite of its rigorous winter climate. Norfolk appears to have been, as in former years, the most dangerous port as to typhoid fever infection.

Next year it is hoped to show also the comparative admission ratio of these diseases on cruising ships with reference, wherever possible, to the port whence the infection was received, but it is believed that while the admission ratio will be uniformly lower the present charts serve as a trustworthy index.

NEW CONSTRUCTION COMPLETED, AT PRESENT BEING UNDERTAKEN, AND CONTEMPLATED.

Naval Hospital, Portsmouth, N. H.—Except for minor repairs about the hospital, necessitated by the deterioration incident to occupation, no construction work has been done on this building during the year. The adverse comments that have been embodied in previous reports on this hospital in recent years still hold good, in so far as location, condition, and adequate facilities for accommodation of patients are concerned. It has long been apparent to the bureau that these deficiencies, especially those relating to the present location of the buildings, could only be remedied in a satisfactory manner by building a new hospital on a different site. Such a site has been selected to the north of the road leading to the marine barracks, and embracing nearly all the peninsula, and a contract has been awarded for the erection of a new hospital on this site, with a capacity of about 130 beds and having the same general arrangement as that now in course of construction at Puget Sound, Wash., and those authorized to be erected at Chelsea, Mass., and Newport, R. I. The full development of this hospital will contemplate the provision of three sets of officers' quarters, female nurses' quarters, power house, contagious ward, stable and greenhouse, outside lighting mains and connections to navy-yard, heating, water, and sewer systems, roads, walks, and improvement of grounds, and a laundry building and equipment.

Naval Hospital, Narragansett Bay, R. I.—In view of the prospective erection in the near future of a new hospital on the property recently purchased by the Government for this purpose, only necessary minor repairs were made at this hospital during the past year. Plans and specifications for a new hospital of 130 beds' capacity were prepared during the summer, and award of contract for this building has since been made. This hospital is to be of the same general type as that proposed to be erected at Portsmouth and Chelsea, i. e., a central administration building with two-storied wards of pavilion style, with connecting corridors and an operating room and subsistence pavilion. It is further contemplated to erect as accessory buildings at this hospital a power house, three sets of officers' quarters, stable, laundry, greenhouse, contagious ward, and suitable nurses' quarters, and plans are now in course of preparation looking to the construction of such buildings. There will also be required at this hospital about

800 feet of quay wall, a pier, water-supply and sewer system, outside lighting system and connection with government plant at training station, a fence and roads, walks, and improvement of grounds.

Naval Hospital, Chelsea, Mass.—The proposition to erect an entirely new hospital building on the elevated ground in the rear of the present hospital was taken up early in the year and has since progressed to the point of having plans and specifications drawn up and advertisement made for bids. These bids were opened on September 18, and a contract for the erection of a new hospital has since been made.

In view of this projected building programme, only urgently necessary repairs were made on the present building during the past year. The new hospital will present the same general features of arrangement and construction as those planned for Portsmouth and Newport, and when fully commissioned it is the bureau's intention to take up for consideration the project of the conversion of the old hospital buildings into quarters for nurses, laundry, and other accessory uses. Other necessary buildings at this institution will be a contagious ward, stable, greenhouse, and a water, lighting, and sewer system, and improvement of grounds, walks, and roads.

Naval Hospital, New York, N. Y.—While this hospital is in fair general condition from the point of view of minimum requirements, it is not of a type adapted to secure the best results in the modern care of patients, and as it requires a considerable expenditure for necessary repairs every year it has become very apparent that a complete rehabilitation and reconstruction of the building is the only outcome and it is believed will be the most economical in the end. Preliminary study plans for such a work are in course of preparation. During the past year the dressing rooms and bath rooms on the second floor have undergone extensive repairs. The former contagious ward has been suitably remodeled to fit it for occupancy by the 6 members of the Nurse Corps on duty at the hospital. As about 10 nurses will be required here eventually, the question of additional quarters will soon have to be considered. Plans and specifications for a contagious disease annex at this hospital are now approaching completion. At the medical supply depot a contract for the building of a lumber shed has been awarded. Any extensive reconstruction of this hospital will also include a rearrangement and improvement of grounds, walks, and roads, and the provision of sewer, water, lighting, and heating systems.

Naval Hospital, Philadelphia, Pa.—The rehabilitation of this hospital, undertaken during the past year, has made satisfactory progress, over 60 per cent of the work now being completed. During the past year a consolidation of the power plants of the hospital and naval home was approved by the department, and a contract has since been awarded for a necessary increase in the plant. No new construction of importance other than that mentioned has been undertaken at this hospital, and none is in contemplation by the bureau until the present work is completed. It is expected that the reconstruction of this hospital will be finished during the coming spring.

Naval Hospital, Annapolis, Md.—The minor repairs instituted at this hospital to remedy certain defects in the walls, which in their original condition were very damp in wet weather, consisting in the calking of window frames and repairing of gutters, were not materially successful, and the bureau has therefore been obliged to institute rather extensive repairs. No new construction has been completed during the year 1909, but the new medical ward, as well as the two contagious wards, are well under way, and an award of contract for the construction of quarters for medical officers, nurses' quarters, and stable has recently been made.

Naval Hospital, Washington, D. C.—Only such minor repairs and alterations were undertaken at this hospital during the past year as were necessary to keep it in good condition and in readiness for the treatment of venereal and infectious diseases and for use as a training school for the instruction of the Hospital Corps. A metallic ceiling was fitted in the fireroom, repairs to boiler and stack made, and minor repairs to roof completed during the year.

Naval Medical School Hospital, Washington, D. C.—At this hospital the two new wards, with connecting galleries, which also serve as solaria, were completed in the spring and were at once occupied, doubling the bed capacity for enlisted men and giving a needed increase of space for administration purposes. With these new wards this hospital now affords accommodations for about 120 patients. Much work of a minor character, such as painting and pointing up of walls, has been done during the year. Ventilating openings, with manhole plates were placed in the tunnel and have greatly lessened the heat and moisture which formerly found its way into some of the rooms. A new brick and cement conduit for steam pipes and electric wiring has been built from power house to laundry and stable; extensive grading upon the steep hill below the hospital, with brick and retaining wall above power house, were completed during the year. The new system of roadways projected during the year has been laid out and work on them is now practically completed. The foundations for the new group of buildings at this hospital, consisting of officers' quarters, sick officers' quarters, female nurses' quarters, quarters for Hospital Corps, and contagious ward, are now completed and the buildings well under way. An extension to the power house has been authorized, as well as repairs to its roof, and the provision of a machine shop and coal bin. The reconstruction of the remaining roadways and improvement of grounds in the hospital and naval medical school inclosure has been deferred until the heavy hauling over them incident to the new construction is at an end. The provision of a suitable inclosing wall or fence for this compound is under consideration by the bureau. Its necessity is apparent, and discipline in both the institutions in these grounds will be greatly enhanced by such a provision. The additional buildings now being constructed in the hospital grounds have necessitated a material extension of the sewer, lighting, and heating systems, and plans and specifications for this extension are practically completed.

Naval Hospital, Norfolk, Va.—In November, 1908, the new wards at this hospital were finished, and since February of the present year have been in active and successful use. Additional wards, two in number, have been contracted for and active work on their construction is now going forward. When these wards are placed in commission this hospital will have a total bed capacity of about 350. In addition, the new power house has been completed and fully equipped, including a laundry and disinfecting plant. In this building is also placed the pumping plant for raising water to the new water tank erected in the grounds at a height of 150 feet and capable of holding 130,000 gallons of water. For the completion of this hospital there is needed a fire-protection system, extension of lighting circuits and sewer and heating system, a local telephone system, junior officers' and nurses' quarters.

Naval Hospital, Pensacola, Fla.—In view of the unsettled policy regarding this station, no extensive work on the hospital buildings has been undertaken, although repairs are more or less urgently required to place them in good condition. Only minor repairs were made at this hospital during the year.

Naval Hospital, San Juan, P. R.—While the hospital buildings at this station are inadequate, the continued unsettled policy regarding this station and the minor amount of naval medical work done there under present conditions has compelled the bureau to withhold any recommendations looking to extensive construction. Preliminary study plans for a new hospital are available for use should the needs of the station require a new hospital, but for the present no expansion in this direction is contemplated. Only minor repairs and alterations have been made during the past year.

Naval Hospital, Sitka, Alaska.—The hospital building at this station, while requiring extensive alterations, is of such a nature that it hardly warrants the expenditure of any large sum, and therefore only such repairs as were necessary to keep it in a habitable condition were carried out during the last year. The bureau has authorized the extension of electric lighting and steam heat to the hospital, and this work has been completed and represents a distinct sanitary improvement, eliminating stoves, and the danger and inconvenience that has existed from the use of oil lamps. Heavy rain and wind storms during the year necessitated quite extensive repairs to the roof of the hospital building.

Naval Hospital, Las Animas, Colo.—Since last year's report the work of construction at this hospital has progressed satisfactorily along the lines originally laid down. In addition to the old buildings repaired and occupied up to January 1, 1908, those mentioned in the bureau's report of 1908 as being partially completed or under construction have now been completed and occupied. In addition, a new 8-inch artesian well has been driven, a telephone system authorized, the power plant completed, with an additional boiler authorized, and practically all the work included under the water, sewer, lighting and heating systems finished. The construction of a group of sick officers' cottages (8 in number), with infirmary and connecting subsistence building, is making good progress. In view of the possible danger of fire arising in connection with a wooden building used as a garage for the steam ambulance, the erection of a brick garage has been authorized. The remodeling of the west barracks has been completed and the men's infirmary is under construction, and it is expected will be completed during the coming year. The cottages for civil employees have been completed. The construction of a brig and a mortuary is going forward satisfactorily. The question of providing additional officers' and sick officers' quarters, female nurses' quarters, additional irrigation facilities, a fire-protection system, and a ward for contagious diseases is under consideration by the bureau.

Naval Hospital, Puget Sound, Wash.—Pending the construction of a new hospital at this station, a contract for which was let after much delay occasioned by insufficient appropriation, the present hospital building has fulfilled all usual requirements, a tent camp being maintained in connection with it to care for overflow of patients, and allowing of necessary expansion during the visit of the fleet to this port. Only necessary minor repairs were made to the hospital buildings during the year. The department has authorized the preparation of plans and specifications for officers' quarters, nurses' quarters, and a stable, as necessary adjuncts to the new hospital. In the immediate future the question of building an additional ward at this hospital will require serious consideration, as well as the provision of a contagious-disease building.

Naval Hospital, Mare Island, Cal.—At this hospital the work of building the surgical ward and operating room extension has gone forward during the year and is making satisfactory progress. Plans and specifications for nurses' quarters at this hospital are being prepared. These quarters will furnish accommodations for about 10 female nurses. A third boiler has been placed in the power house and the plant is now adequate for all prospective demands, including those of the new surgical annex now being constructed. The work in the tiling and wainscoting of the mess rooms, kitchen, and pantry has progressed far enough to indicate that its completion will greatly improve the sanitary condition and the appearance of this portion of the building. The building of a garbage crematory at this hospital has been strongly recommended, as well as an increase in the cemetery and a shelter for burial parties. A great deal of minor repair work by the hospital force has been done on fences, buildings, and particularly on the old gas house.

Naval Hospital, Canacao, P. I.—The work of hospital extension, authorized in 1907 and commenced in 1908, has been continued, but owing to inherent local conditions has not made very rapid progress. The following work has been finished: Two 40-bed wards, quarters for Hospital Corps, a new sick officers' bungalow and dining room, three sets of officers' quarters, quarters for Chinese employees, and an addition to and changes in subsistence building for enlisted men and convalescents. The buildings for the ice plant, insane brig, and operating-room pavilion are practically completed. The extension of the sea wall on the Cavite side of the reservation and the filling in and grading of grounds is still in progress. The construction of a morgue and cold-storage building, fences, roads, sidewalks, and an extension of the lighting and water systems still remain to be completed. The construction of a suitable fence around the hospital cemetery and the building of individual cement vaults has been under consideration. The need of an additional amount of water storage has required the building of a water tank of 100,000 gallons capacity. This tank has been purchased and will be erected shortly. As prospective new work at this hospital, the bureau has under consideration the building of contagious wards, a new wharf, and an enlarged laboratory. Tentative plans for female nurses' quarters at this hospital are in course of preparation.

Naval Hospital, Yokohama, Japan.—The new main building, contracts for which were entered into in January, 1908, has been completed and is now ready for occupancy. In conjunction with the building of this structure, a new kitchen has been erected near the site of the old kitchen, the latter having been razed, as being no longer of value. The other work in connection with the new construction, such as concrete paving, pipe tunnels, drainage system, grading, etc., is completed. A wire fence has been erected in the rear of the kitchen and main building, stone work about compound pointed up with cement, the stone wall on north side of coast reconstructed, and a small frame building erected for storage and as a temporary morgue in the rear of annex. A new main entrance and gateway has also been provided. The advisability of additional boiler capacity and the installation of a dynamo at this hospital are matters for future consideration.

Naval Hospital, Great Lakes.—The contract for the erection of a main hospital building, with a separate building for laundry and employees' quarters, and three sets of officers' quarters was let during the year, and satisfactory progress is now being made toward their construction. The department has recently authorized the preparation of additional plans looking to the erection of a contagious ward and quarters for female nurses at this hospital.

Naval Hospital, Pearl Harbor, Honolulu.—Preliminary study plans looking to the erection of a hospital at this station, whenever it approaches occupancy, have been prepared, and the bureau is prepared to proceed with the work at the appropriate time.

Naval Hospital, Baguio, Benguet.—During the past year study plans for a 40-bed hospital and sanatorium at this point in the Philippines were prepared and forwarded to the Asiatic station for examination in connection with the question of the selection of a suitable site in Baguio for naval hospital and sanitarium purposes. The erection of such a building is contemplated as soon as the matter of deciding upon an appropriate site is settled by the department.

DISPENSARIES.

Washington, D. C.—The naval dispensary service constitutes an indispensable provision of the Medical Department for the care of the large number of officers on duty in Washington and their families and enlisted men on special duty or not otherwise provided for. It is quite apparent also from the great and growing demands upon their clinical facilities that there is a general appreciation of them. Thoroughly cognizant of these facts, the bureau has striven with what is believed to be a large measure of success to make the service efficient, both in point of equipment and personnel, yet, in spite of the effort, in the two preceding reports, to clearly explain the reasons for the division of the work which went into effect coincidentally with the reorganization of the bureau, there seems to be a lingering misunderstanding of the purpose and a persistent lack of comprehension of the special benefits which the change will accomplish for all concerned. It was impossible to do justice to the large number of cases that sought consultation and treatment under the old régime, and the need of space in which to expand for the accommodation of purely office work further reduced the dispensary facilities in the Mills Building. Moreover, there was need for more prompt emergency attention to officers on duty in the department, who could not afford long absence from their desks, which was impossible with the then large and varied demands upon its capacity, and it was reasonable and proper therefore that the dispensary in the Mills Building should be strictly reserved for this class of patients as was announced. On the other hand, the great majority of patients, embracing those with more leisure at their disposal, could be infinitely better served at the dispensary in the Medical School Hospital, which not only in itself offered a complete equipment for exact diagnosis and every kind of out-patient treatment, but was convenient to the additional facilities for the study and treatment of cases represented by the elaborate equipment of the hospital and the laboratories of the school, and which offered them the benefit, when necessary, of the advice of experts in various special subjects. This dispensary therefore was designated to receive this class of patients, and with a view to systematizing the work on an efficient basis, as well as for the convenience of officers and their families, definite hours of consultation and treatment in the several branches of practice were established and published. In the drafting of rules for the conduct of the dispensary provision was made also for the care of emergency cases out of hours, on holidays, and at their homes. The bureau can see no reason for modifying the system at present in operation, even were it possible, and, though there has appeared to be some disposition to make over much of a slight inconvenience, viz, the distance, and to disregard the desires of the bureau in the matter, it is hoped that everybody will soon recognize the advantages of the change and conform more willingly to the requirements.

Dispensary, Medical School Hospital.—The work of this division has employed the services of four medical officers—one assigned exclusively to that duty and to respond to calls throughout the city, and three assigned as assistants in charge of different clinics in addition to their duties in the hospital or at the school. All of these officers were and will be selected because of their trained ability to carry on the work of the different departments.

A change was made in the officer under whose direction this dispensary falls on March 15, 1909, Surg. C. H. T. Lowndes having been detailed to relieve Medical Director W. S. Dixon upon his retirement on account of age.

The report of work for the year ending June 30, 1909, includes 3,809 visits, 1,815 office consultations, and 4,390 prescriptions filled. These figures, however, do not embrace the work of the eye department of the dispensary from July 1, 1908, to June 30, 1909, for which 651 cases of refraction and diseases of the eye are recorded. This includes officers of the navy and their families, midshipmen, and enlisted men. If to this number be added the cases which were refracted and otherwise treated during the preceding eight months and of which no report has been previously made, the total would be 1,020 eye cases which have been received since the present plan of ophthalmological work was instituted, October 1, 1908. There was also a large clinic of ear, nose, and throat cases.

Dispensary, Mills Building.—The work of this division has been accomplished by the medical officer in charge of the bureau's division of records and pensions, aided by an assistant to the dispensary service, and as far as known all patients for whom its facilities are designed have received the prompt attention required.

The report of work for the year ending June 30, 1909, includes 4,632 officer consultations and 3,800 prescriptions filled, exclusive of renewals.

MEDICAL SUPPLY DEPOTS.

The location and the character and extent of the work of the supply depots under the Medical Department were described in the bureau's report for 1908. Constituting the purchasing, storing, and distributing centers for every sort of material necessary to the care of the sick and injured of the navy, ashore and afloat, they continue to perform a function the importance of each of which is relative, varying according to the demands of the sphere of their respective stations. Judged from this standpoint, the importance of the depots at Mare Island, Cal., and Canacao, P. I., while destined to vacillate from time to time, has greatly increased during the last few years, owing to the large number of ships serving in adjacent waters and the quantity of supplies stored.

There is, however, an absolute superior importance which attaches to the one at Brooklyn, N. Y. This is the main purchasing depot for the principal medical and surgical supplies of the service and from which they are distributed, not only to the hospitals, yards, stations, and ships on the Atlantic side of the continent, but to the other two supply depots. The growth of the service has naturally created the need of a more liberal stock of ready supplies for routine and emergency issue, and the work incident to purchasing, inspecting, packing, and distributing these additional stores has fallen upon a force which years ago, when established, was considered no more than sufficient for the efficient operation of the depots. Yet this numerically small force has met the demands of the service with such promptness and filled requisitions and kept accounts with such accuracy that it deserves nothing but commendation.

The work of two of these depots, the one at Mare Island, Cal., and that at Brooklyn, N. Y., but particularly the latter, will be further augmented by the authorized issue of medical supplies to the Naval Militia, and the revision of the supply table will also effect an increase of work by such changes as the more generous allowance of surgical dressings and certain appliances and the formulation of allowances for ships with crews of "600 men and upward."

No specific issue of stores was made for the international relief work at Messina, Italy, or at Adana, Turkey in Asia, the necessary supplies being furnished by the individual ships from which medical detachments were detailed. It is understood, however, that a considerable quantity of stores was used in carrying on the relief service among the sufferers of the disaster at both these places.

Brooklyn, N. Y.—During the fiscal year 1909 requisitions from vessels, stations, and other supply depots were filled and shipped from the depot, and the stores so handled amounted in value to $225,394.94.

Mare Island, Cal.—The new location of this depot has with the year's experience proved entirely satisfactory, and the addition of the "finished" basement has very greatly facilitated the handling and packing of stores. The work of the depot was materially increased by the visit of the battle-ship fleet to the West coast. During the fiscal year 1909 requisitions were filled and stores to the value of $37,824.98 shipped to vessels and stations.

Canacao, P. I.—Since the last reports this depot has been transferred to the new accommodation in the grounds of the hospital at

Canacao, P. I., where it is administered under the direction of the commanding officer of the hospital, with a separate force, consisting of a pharmacist and a hospital steward, who have been assigned especially and solely for that duty, and three laborers, the work of the depot under the present arrangement should be efficiently accomplished.

During the fiscal year 1909 126 requisitions from vessels and stations were filled and shipped, and the stores so handled amounted in value to $24,784.05.

PRISONS AND PRISON SHIPS.

The rapid growth of the service in recent years and the circumstances associated with this development have created the need for a considerable increase of these provisions. It is also true that the succeeding years of experience which the navy has had with such disciplinary institutions have been marked by great progress in their management. It is recognized and, at first thought, perhaps, a curious fact that those features of prison administration which are in the interest of mental, moral, and physical hygiene are also strongly in the interest of highest corrective purposes. Improvement in naval prisons has been largely of a hygienic and sanitary nature in the broadest sense, and though in certain directions they may boast a superiority over civil prisons, there is room for improvement along lines indicated by the most recent studies of this subject.

The bureau has watched this feature of the service and has from time to time made what were believed to be important recommendations bearing upon the requirements of health. It now seems timely to invite attention to a less obvious obligation and the means for its fulfillment. It is recognized that inmates of prisons are, in general, exposed to such disease influences as are common or peculiar to the station at which they are located, modified only by such supervisory precautions with which it may be found possible to surround those under conditions of strict surveillance and control. In addition, the inmates are exposed to the dangers of infection by those diseases which may be carried from various other localities by new arrivals unless ample precautions are observed. The need of effective facilities and measures to prevent the development or invasion and spread of disease is, without doubt, clearly seen from the physical aspect. Indeed, provisions at the Portsmouth prison have been, and in other places will be, made for the disinfection of the effects and persons of new arrivals and their segregation for a time sufficient to cover the incubation period of any infectious or contagious disease. The study of suspects is being carried out with more or less system according to existing facilities. No laxity in this direction should be permitted.

There is also a moral obligation imposed upon the Government that those who may be confined are not, through neglect, exposed to influences inimical to health. In addition, there must be full recognition of the fact that there is usually, if not always, more than the offending side in the personality of those confined for breaches of one sort or another, and the Government is under moral obligation, while they are temporarily under punitive discipline, to make such study of and exercise such supervision over the individual case as may be necessary and to order the administration of the prison according to the broadly moral and ethical requirements of the prison body, so that when each man is returned to duty or discharged into civil life he may have benefited by the punishment and not hardened in the process. With this end in view, caution must be observed that the term of confinement is not too pleasant, lest the prison be regarded as a comfortable retreat from arduous duty, but at the same time due consideration should be given to personal welfare. There is as much danger to ultimate results in the one extreme as the other. A sanitary and hygienic order of life is conducive to the best interests, not only of the class under discussion, but of society, and is not only compatible with but actually enhances the effectiveness of corrective discipline. The points to be given attention are food—sufficient, nutritious, well selected and nicely presented, but without a semblance of luxury; easily and regularly cleaned and comfortable clothing; cleanliness of person, preferably by shower baths; scrupulous cleanliness of prison spaces and furniture and all surroundings; an abundance of light and air; and exercise and occupation.

It is believed that means and regulations for all except the last-named item (occupation) are amply provided for. That one important requirement must not be disregarded. The mental health of prisoners and the personal equation should constitute a serious concern. This inevitably leads to the question, now being ably discussed by eminent psychologists and sociologists, as to our present-day methods of conducting prisons from the aspect of mental and moral hygiene and as to whether or not a prison is a place of punishment or a corrective institution. If a place of punishment, is the system now in practice humane in the light of modern civilization? Naval prisoners, in the main, are not criminals of the type usually associated in the mind with convicts. Their offenses are usually of a military nature, and many of them otherwise possess a sense of uprightness which might well be fostered to the advantage of all concerned by restriction of personal liberty under conditions more in harmony with their temperamental needs. With this idea in mind it would be well to give serious consideration to the question of segregating prisoners more or less according to the character of their defections and the degree of their moral obliquity and of establishing a type of "reform farm" where healthful conditions, work, and the moral stimulus of fresh air and sunshine might work together. Such institutions could be established on our insular possessions, and it is fair to assume that the majority of the men would come out improved morally and physically. It is now recognized that regular occupation counteracts the depressing influence of their situation, preserves the mental power, and tends to prevent and cure insanity. Is sufficient thought given to this matter in the navy? The bureau is aware that prisoners are employed as provided for in the "Rules and Regulations for the Government of the United States Naval Prisons and Prison Ships," but under the operation of these the opportunity to occupy prisoners is more or less haphazard and dependent upon the station's needs from time to time and is not at all regular. The Judge-Advocate-General gave pertinent and lengthy consideration to the question of "Useful work of prisoners" in his annual report for the fiscal year 1908, and his suggestion of means to the desired end are eminently deserving of adoption and extended application. He also points out in this connection that the product of the character of work indicated would be of value to the service and constitute a saving to the Government. Some suitable, systematic, productive occupation should be assigned to groups of prisoners or individuals, and if the laws are antagonistic to the acknowledged good of the prisoners in this respect, it is believed that effort should be made to have them modified.

The contention "that all prisons should be largely independent in respect to the care of their sick and injured" and that provision to that end "would be in the interest not only of health, but of discipline and effective confinement," which was made in last year's report, has gained support by virtue of practical experience at the naval prison, Portsmouth, N. H., where the medical and surgical provisions, though as yet incomplete, proved to be of excellent service, not only in the successful management of bona fide cases, but in the exposure of two difficult cases of insanity simulated for the purpose of effecting release. Malingering is always a problem in prison discipline, and having the sick quarters within its confines discounts to a large extent any benefit which might come of its practice, such as was contemplated by the men at Boston, referred to in the report on that prison, and no advantage is attained by prolonging real or simulated disability.

There are special problems of hygiene and sanitation inseparable from ships as places of confinement which are almost insuperable, especially the more or less overcrowded condition of naval prison accommodations. Reference is here made to the innumerable physical and moral ills which inevitably follow as a consequence of poor ventilation, congestion, and the unavoidable and undesirable close contact incident to community life on board ship, in contrast to a greater or less degree of separation of prisoners which is possible in properly constructed prisons on shore. Cleanliness of the body, and personal hygiene in other directions, are accepted postulates of penal sanitation, and facilities for their enforcement have been or are being provided even on prison ships, but a less well recognized hygienic consideration is that of mental cleanliness, which may be designated as of cardinal importance. It has to do with the idiosyncrasy of the individual under enforced environment, and, while representing a particularly difficult problem, even under ideal conditions it becomes serious under circumstances permitting free intercourse between inmates, as on prison ships. It is not surprising that the weaker characters succumb to the evil influences of vicious associates who find unrestricted opportunity for clandestine proselyting. Various kinds of immoral offenses against the physical laws are likely and have actually been discovered in practice, and among these the use of cocaine is prominent. This latter subject will be taken up under "Cruising ships."

Navy-yard, Portsmouth, N. H., naval prison.—This institution was placed in commission on April 2, 1909, and with its modern furnishings and appliances is said to fulfill every reasonable requirement. Its construction, according to a comprehensive plan, makes provision for all the necessary features of prison life, including sick spaces. The environment of these quarters is healthful and pleasant and its usefulness has been established. Cleanliness characterizes the building throughout and there has been little sickness. Epidemic diseases were very effectually kept out by the system of disinfection and quarantine in operation. In this excellent record the *Southery* and *Topeka* played an important part, and of course when the new hospital at this station is finished the provisions for the prison sick will be of the best.

U. S. S. Southery.—During 1908 much was accomplished toward furthering health and comfort on this ship. This result was rendered possible by the commissioning of the *Topeka* as a receiving ship for prisoners, and her employment as an auxiliary to the *Southery*, with capacity for about 200 prisoners. As soon as she was relieved of her excess of prisoners there was a decline in such diseases as pneumonia, influenza, bronchitis, and tonsilitis, which are common to that climate and specially prevalent among prisoners during periods of overcrowding and poor ventilation. The relation which exists between overcrowding, poor ventilation, and diseases of the respiratory tract must be emphasized, and it is evident that overcrowding must be avoided. By means of the *Topeka* the cubic air space per prison was increased from 168 to 244. Three epidemics of minor importance developed during the year, the diseases being German measles, diphtheria, and mumps. Each of these epidemics was imported and quickly stamped out. A considerable number of inmates were discovered to be using cocaine, and a campaign against the drug was instituted, with considerable success. Endeavors were directed against the States of Massachusetts and New Hampshire, the pharmacists of Portsmouth, and the individual smuggler. New Hampshire signified her intention of establishing adequate anticocaine laws, the pharmacists of Portsmouth combined in an agreement not to sell the drug to enlisted men, and the individual smuggler was apprehended and punished. The result has been very satisfactory, no new cases having come to notice for many months. Otherwise the health of the ship was, on the whole, very good. The sanitary condition was excellent.

U. S. S. Topeka.—On July 3, 1906, the ship was placed in commission and moored opposite the U. S. S *Southery*, to be used in conjunction with that vessel for the confinement of general court-martial prisoners. This accessory provision enhanced the opportunities for preventing the spread of diseases. The *Topeka* was designated a place of detention for observation of new arrivals, and as such has served as a filter and protected the *Southery* and naval prison against invasion by various infections. Venereal and other contagious diseases, parasites of the body and clothing, and infectious diseases, especially typhoid fever imported by "carriers" from typhoid localities, are the diseases thus eliminated. Examinations have been conducted on the U.S.S. *Southery* and at the naval prison with a view to determining those cases of syphilis that presented active lesions, and these were transferred to this ship for segregation, observation, and treatment. Special bathing facilities have been provided for syphilitic patients, with the result that they effect their toilet apart from the other prisoners. The ship has been kept in an excellent state of cleanliness throughout, and though there has been considerable sickness on board, owing to the above-described system, no case has developed which could be ascribed to the ship itself. The rated capacity of this ship, however, is in excess of hygienic standards, and the medical officer reports that an excess over 75 prisoners seriously encroaches upon the necessary air space and creates a demand for increased artificial ventilation.

Navy-yard, Boston, Mass.—The prison at this yard has been kept in excellent sanitary condition, and the health record is good, with the exception to be mentioned below. Its capacity within hygienic standards has been quite adequate to the demand for accommodations, and several sanitary improvements have been made since the last report, notably with respect to ventilation. Each cell has had an opening (6 by 12) cut in the upper portion of the rear wall, thus allowing purification of the air by current instead of diffusion, as previously. It is understood that steps are being taken to make other much needed improvements with a sanitary as well as an administrative bearing. During the first half of the year 19 cases of diphtheria occurred at the prison. On July 1 and 2, 16 men used a solution of potash as a gargle with the idea of transfer to hospital and ultimate escape therefrom. The first man used a strong solution as a gargle, producing extensive ulceration of the anterior fauces. The scars remaining on the anterior pillars of fauces were extensive and eventually, as a sequela, melancholia supervened, and it was necessary to transfer him to the Government Hospital for the Insane. The others had superficial lesions from one-quarter to 1 inch on various portions of the fauces covered with grayish membrane. Only one of these cases admitted having used a solution of potash. The lesions were all similar, occurred at the same date, and were negative bacteriologically. This is another example of malingering as a problem of prison discipline. Six cases of diphtheria having occurred during the month of June, the prison was thoroughly cleaned, and the entire wall surface of building and cells was scraped and scrubbed and then whitewashed. The prisoners during fair weather messed, slept, and lived in the court of the prison. There were no new cases from that date.

Navy-yard, New York, N. Y.—The prison at this yard is, under present circumstances, well located, so that it has an abundance of exposure on all sides, and ideally constructed, conforming in every detail to the most modern requirements as regards ventilation, lighting, heating, sewerage, and the facility with which the cleaning of the whole building may be accomplished by flushing when desirable.

Meals and medical attention are supplied by the U. S. S. *Hancock*, which arrangement can not be entirely satisfactory. All cases of sickness are entered on the medical journal of the *Hancock*, so that there are no definite data regarding illness as occurring at the prison. It is known, however, that no epidemics or other cases of illness have occurred that are worthy of particular mention.

There are a large number of prisoners brought in during the year as stragglers and deserters who are held here pending trial or to undergo punishment in consequence of trial. Many of these when first brought in are poorly clothed, uncleanly in person, sometimes affected with body parasites, and not a few display various forms of venereal disease. The latter are often difficult to cure because of previous neglect and the depraved physical condition of individuals.

The capacity of the prison has not been exceeded during the past year, and it has been kept in good sanitary condition.

Navy-yard, Mare Island, Cal.—During the past year a new wing was added to the naval prison at the yard, very much increasing its capacity. It is well lighted and ventilated, and the cells, of which there are three tiers, meet all sanitary requirements. In adding to the capacity of the prison, however, no additional bathing and water-closet facilities were included, and this was a serious oversight which ought to be remedied.

The capacity of the prison has at no time during the year been overtaxed, and an excellent state of cleanliness has prevailed. On the whole, the health record has been good, no serious cases of illness and no deaths having occurred.

The U. S. S. *Manila* is an auxiliary to the receiving ship *Independence* and as such is used for the reception and confinement of prisoners awaiting trial or the action of the department. Sanitary supervision and medical attention are given by the medical department of the *Independence*, and no separate records are kept. Definite data are therefore not available, but the health of the ship has been good.

U. S. S. Nipsic.—This ship was placed in commission as a prison ship at Puget Sound Navy-Yard on January 9, 1908. She has four decks, of which the berth deck is the only one used at present for the housing of prisoners. She is kept scrupulously clean, and so far has been free from epidemic disease. One prisoner developed typhoid fever which, however, was contracted while he was a straggler. No other cases developed. Tonsilitis has been * * * the most serious of the few cases of disease present. The age of the vessel, the cracked and gaping woodwork, the crowded prison compartment, illy lighted, to which the sun's rays never reach—all are conditions which favor a rapid transmission of disease should such once gain a foothold. On May —, 1908, 50 prisoners were received from the U. S. S. *Kentucky*, on which ship a case of smallpox was discovered. To prevent the probability of an outbreak of this disease, all the prisoners and crew of the *Nipsic* were vaccinated, and the 50 new arrivals were vaccinated and isolated for seven days. No new case occurred.

The prison compartment, including the sick bay, contains about 17,000 cubic feet air space. On July 3, 1908, a special report was made, recommending that the complement be officially reduced from 175 to 100 or 110. On July 16, 1908, a further report and recommendation was made that the complement be reduced and artificial ventilation installed. Both recommendations were carried out. The ventilating system provided consists of two blowers, capable, combined, of supplying about 1,600 cubic feet air per minute and of thus changing the air once in about fifteen minutes. At present these can not be used at night, when the need is greatest, but an improvement is being planned whereby they may be so used. About 150 men are confined aboard with about 114 cubic feet air space per man.

There is under consideration the enlarging of the prison space by including the coal bunker and old wardroom country. This would give space for about 40 additional prisoners. It is doubtful if even this increase of space will be sufficient for the needs of the station in the near future. A modern prison ashore is recommended as very desirable.

The medical department consists of a dispensary (5 bunks in rooms), a sick bay for 6 hammocks, and a toilet and bath room sufficient for the needs of the ship.

The solitary cells are on the orlop deck and are large, well ventilated and heated, and are easily cleaned.

The washing and bathing facilities are inadequate, but plans are being prepared for their extension.

Cavite, P. I.—The disease influences surrounding this station are numerous and important, but the health record has been good for the year and no epidemic diseases appear to have marked the prison body. The structural arrangement and the sanitary condition of the new prison building is reported as good and the sanitary condition of the old prison building has been as good as possible under the circumstances. No disease can be attributed to any lack of proper sanitary supervision. It is an old building and should be torn down and replaced by another more suitable, as recommended in previous reports.

The old wooden scuttle butts for the use of inmates seem to have been a matter of concern to the medical officers of this station, and it was recommended that these be replaced by galvanized-iron cans for each building which could be kept in thorough sanitary condition, one of which could be steamed and filled every other day. The adoption of the suggestion is said to have added materially to the comfort and is an important step toward safeguarding the health of the prisoners. It has also been recommended that certain necessary improvements be made in the lavatory accommodations.

TRAINING STATIONS AND RECEIVING SHIPS.

The practical recognition of the necessity for more enlightened and more ample provisions for the accommodation of the young men who are congregated at these places has been repeatedly urged in the past. Much has been accomplished in this direction at training stations, but there is still a great deal to be done, and the bureau feels constrained to urge a continuation of that serious consideration which the importance of the matter deserves. Reference is respectfully invited to the comments under this head in the report for 1908. The experiences of the past year afford additional evidence that there is constant danger of epidemics of infectious and contagious diseases and imminent liability of their extension to ships and other stations under present conditions and with existing facilities, in spite of the utmost precautions. The watchfulness of medical officers will not suffice unaided. They must have the proper facilities to carry out the sanitary measures required in handling the large numbers of men that are incessantly coming and going. Suitable detention barracks with disinfecting plants, etc., have been supplied at some of the training stations, and are to be included in the equipment of the Great Lakes station, but the most thorough sanitary equipment and arrangements are needed for all. It would be well in this connection to profit more fully by the careful study of the problem involved and the observations made in the years of experience at the various training stations. The form of establishment which is shown to be the best should be adopted as the standard, and all others made to conform as far as possible to it, so that there may be a uniformity not only in character of provisions but in results. Moreover, there should be no further delay in abolishing ships, particularly the old wooden ships, for receiving purposes, and supplanting them also by modern barracks with complete sanitary accessories. Thus only can a reasonable standard of decent living be accorded recruits and others under training or awaiting transfer, and thus only can the practice of an effective system of hygienic supervision, segregation and observation, and thorough disinfection be inaugurated. The navy can not afford to disregard the possibility that important movements and naval operations will be seriously hampered at a critical time by an epidemic like that which occurred on the *Independence* in February and on the *Hancock* in April, 1909, which are mentioned elsewhere, and which necessitated rigid quarantine. The practical bearing of such a weak point in naval organization upon the vital question of general preparedness and ready efficiency must be apparent.

A small epidemic of scarlet fever (13 cases) also occurred at the training station, Newport, R. I., in the early months of 1909, and this event furnishes material for a useful comparison with the epidemic on the *Hancock* in point of the relative seriousness of consequences in each instance. The station was almost filled to its capacity when the disease appeared, and the large number of cases and great possibility of the infection becoming widespread, owing to the youthfulness of the personnel, made the initial outlook on the situation here more unfavorable than on that affecting the receiving ship *Hancock*. Yet in spite of the greater magnitude of the problem to be dealt with at Newport the situation, by virtue of the better sanitary conveniences, was more easily and assuredly controlled. Moreover, though qarantine was established there as well as on the *Hancock,* this step entailed a vastly less crippling restriction on the general service. The personnel of training stations does not represent such a shifting element in the navy as does that of receiving ships, and the effect of cutting them off from communication with the outside means little more than a modification of routine at the station and a partial temporary suspension of the training of a comparatively stationary force. On the other hand, the *Hancock*, like all other receiving ships, represents a clearing house for men in immediate demand for active duty in cruising ships and elsewhere. The quarantining of one or more receiving ships, therefore, is not a matter of purely local concern, but is sure to be widely felt by the whole service, for it not only operates to tie up an otherwise available force of hundreds or perhaps thousands of men, but, what is of equal importance, it deprives the service of just so many valuable distributing bases. The need of more than a qualified or sectional quarantine would in all reasonable probability never occur with a proper system of barrack buildings, and even if the department is not disposed to give countenance to the entire abolition of receiving ships on account of the above considerations, their capacity should be augmented and the sanitary requirements of the times met by the erection of a group of small detention barracks or tent houses for the segregation of recruits and other suspects or those who had been exposed to disease influences, in unit squads. Tents of course should only be employed where the climatic conditions are favorable, and if employed at all our stations so situated, where large bodies of men are kept, many troublesome situations concerning epidemics or proper ventilation and cubic air space would be obviated.

Incidentally, this bringing up the question of the importance of having our principal receiving or training stations located in those sections of the country having a mild and open winter climate. As is well known, the majority, perhaps, of recruits for the navy are young men who have not as yet reached their full growth or physical development, and it is of the utmost importance to their health and future development into strong, robust men that they should spend as much time as possible at work or at exercise in the open air. It should be borne in mind, also, that a very large per cent of recruits are young men just from the farms of the West and South, and have been following occupations that necessitated an outdoor life; and, to take such recruits and crowd them together on ships, or to send them to stations whose climate is, for half the year, such as to render it impossible for them to be out of doors much of the time without exposure to cold or inclement weather, would be necessarily in the highest degree detrimental to their physical welfare in general.

With reference to receiving ships themselves, moreover, the bureau can not refrain from expressing its conviction that their maintenance as places for the retention of recruits and even continuous-service men, but particularly the former, for a longer or shorter period is positively harmful to the service as well as to the individual, and, with the ever-increasing number of men congregated on them, is making for a state of affairs which may at any time prove discreditable to the country. Aside from the strictly hygienic and sanitary arguments for the suggested change, there is a social factor which has generally been overlooked but which merits serious attention. Young men are attracted to the service and enter it with the idea of making it their life career. At least their minds are open to conviction, and they are fully prepared to form a liking for the navy. But their susceptibility to influence is equally sensitive to discouragement, more especially as many of them are leaving home for the first time, and it would not be surprising, therefore, to find that receiving ships are the cradles of homesickness, mental morbidity, and much lasting discontentment, if nothing worse. Recruits are strongly impressed at the outset, quickly forming an opinion of the methods of the service, favorable or unfavorable as the conditions strike them, and the manner in which they are to-day herded together on receiving ships is utterly disillusioning. Happily the living conditions on receiving ships are not an index of conditions on cruising ships, yet unfortunately there is nothing about the conditions under which these young men have their first touch with the service which gives them a true idea of all that is beyond. That there are real objectionable features is clearly and abundantly evidenced by the aversion which most seasoned men feel to remaining any length of time on receiving ships. The conditions are manifestly makeshift, and breed dissatisfaction with the navy. Only those who are experienced in the ways of the service can make themselves even tolerably comfortable with the existing berthing, messing, and toilet facilities, and the false conceptions thus engendered are antagonistic to the best interests of the service. That proper care of new recruits has a beneficent influence is impressively illustrated by the young men who have been trained under the improved conditions which obtain at Newport and Norfolk. These apprentices are noted for their healthfulness, cleanliness of person, and splendid all-round military bearing and deportment, and it is safe to say that their surroundings during the period of training are in great part responsible for this result. These are the men, also, who become imbued with the "military sense," who are loyal to the service, and who reenlist.

Newport, R. I.—The average complement was 1,886. With the exception of an unusual number of cases of pneumonia (23) during the period from July 12 to August 12, there were no serious epidemics, and in general the health and sanitary condition of the station was excellent for the year 1908. The principal infectious diseases which appeared and the extent to which they contributed to the morbidity rate are as follows: Epidemic catarrh, 28; erysipelas, 3; cerebrospinal fever, 1; enteric fever, 3; pneumonia, 36; measles, 67; German measles, 45; mumps, 73; scarlet fever, 3; and pulmonary tuberculosis, 4.

A number of sanitary improvements have been made during the year, such as the installation of the Plenum system of ventilation in Barracks B, and the parts of the personnel benefiting by the changes have shown noticeable improvement in health. Experiments were conducted with a type of drinking fountain, looking to the disuse of community cups for drinking purposes at the main water station in the several barracks, but it did not function successfully. Other styles are to be tried in the hope of securing one that will be entirely satisfactory. The system of precautionary disinfection of individuals and their effects was rigidly observed, and the total number of persons put through the prescribed routine was 5,396. In addition to the disinfecting of any compartment, dormitory, brig, etc., whenever a case of infectious or contagious disease developed therein, there was adopted a regular routine of fumigating all such places every three months, independent of the appearance of disease among the personnel quartered there. It is believed that this procedure was a large factor in reducing the number of sporadic cases and the elimination of serious epidemics, as shown by the fact that only two cases of mumps were discovered at the station after the middle of July, and only two cases of measles after August. During 1908 only 67 cases of measles were treated, as compared with 192 in 1907.

The *Reina Mercedes* and the *Cumberland* were regularly used for quartering and purposes of instruction, and both were kept in good sanitary condition. The U. S. S. *Boxer* has not been used during the year. While the *Reina Mercedes* was at the navy-yard, New York, for repairs, the U. S. S. *Constellation* was used, but she is not sanitarily adapted for living quarters.

Norfolk, Va.—The health and sanitary condition of this training station has been excellent. A minimum of disease has occurred during the year, and though contagious and infectious diseases have from time to time appeared among the personnel none has gained a foothold or developed in epidemic form. This fine record is, it is believed, entirely attributable to the wise provisions which have been and are still being made on the St. Helena Reservation for the sanitary housing of a large part of the recruits in training. The construction of small tent houses of a somewhat novel design for this purpose has proved a great success in not only relieving the overcrowded condition of the receiving ship, but in serving numerous other sanitary requirements. It may be truthfully said that the improvements which have been made at this station in almost every particular are along the lines which the bureau and various medical officers independently have for years represented as necessary, and the experiences of the past year at this station are a substantial vindication of the often-repeated contention of the Medical Department that the control and abatement of epidemic diseases at receiving and training stations could never be realized until the advances in preventive medicine were given their merited place as a guide in making such provisions. The laying of the dust with dustaline is believed to have been an important factor in the reduction of disease. In these and in other respects too numerous to mention the development of this station should be emulated not only in point of material changes but in the enthusiastic cooperation which has marked the relations of the commanding and medical officers in their work toward a common end—the health of the command.

The *Franklin* and *Richmond*, which are administered under the same immediate authority as the St. Helena Reservation (training station), also show a good record of health and sanitary condition. While these, like the other similar ships, must be regarded as generally inappropriate for receiving purposes, they do not wholly come within the range of the bureau's condemnation, owing to their proximity to the training station, with all its facilities for outdoor life and the management of epidemics.

San Francisco, Cal.—The amount of sickness at this station during 1908 is reported to have been far in excess of any previous year in its history—an amount of sickness which can not be accounted for by mere increase in complement (1,095). Nor is this record the outcome of negligence on the part of anyone in authority, for great watchfulness over the sanitary conditions has been exercised and no effort spared to combat all unhygienic influences. The climatic conditions, however, are beyond control, and these are unquestionably bad. Rain, fog, and penetrating cold prevailed almost without cessation during the winter, and dust filled the air during the dry season. This latter condition could be largely rectified by the use of dustaline, as has been done at the Norfolk Training Station.

The following diseases were the principal contributors to the morbidity rate, and it will be noticed that among these, exclusive of mumps and measles or German measles, respiratory affections, and others in part assignable to climatic influences, are the most prominent. There were 1,459 admissions or readmissions, and this number of cases included 378 mumps, 105 measles and German measles, 176 venereal disease, 65 pneumonia, 65 bronchitis, 36 tonsilitis, 22 tuberculosis, 43 malaria, 37 grippe, 27 rheumatism, 17 pleurisy, 14 spinal meningitis, 7 typhoid fever. There were 25 deaths and 106 invalided from the service.

In spite of earnest efforts to stamp out mumps and measles, these two diseases were practically epidemic throughout the year. The cases of pneumonia have been numerous and severe, and with four or five exceptions have been infected by pus-producing organisms, empyema requiring operation developing as a sequela in many. Spinal meningitis appeared in crops of two or three cases at greater or less intervals of time, originally brought, it is believed, from San Francisco, where the disease constantly exists.

Everything seems to indicate the unsuitability of the climatic condition of this station to the physical needs of the boys who are sent there. Nor are the accommodations and arrangements all that they should be. The construction of one large barrack building does not conform to the best ideas for the accommodation of a large number of persons; it is difficult or impossible to properly clean and ventilate the latter without dangerous drafts; and at this station also it is extremely damp, owing to the exclusion of a large amount of sunlight by fog and the humidity of the atmosphere.

The building was repeatedly disinfected, the regular sterilization of clothes and bedding and mess gear, etc., was practiced, and the grounds policed daily, but in spite of all this the sick rate continued high.

The medical officer of the station unqualifiedly condemns the *Pensacola* as unfit for use as quarters.

The new dispensary building was equipped and occupied during the year and, while defective in certain particulars, will be of great benefit in caring for the sick of the station.

U. S. S. Wabash.—The health of this ship during the year is reported to have been good. There was no epidemic. She was, however, kept in such a sanitary condition as to be unproductive of disease herself by the free use of lime, whitewash, and shellac. It is found impossible to keep the sides and decks from leaking, and this fact, together with the process of disintegration of frames, sheathing, and planking consequent upon her old age, makes her essentially unsanitary and would probably necessitate her abandonment in the event of an epidemic.

During the year 172 were admitted to the sick list, 1 readmitted, and 4 remained from the previous year. Of these, 20 were returned to duty, 135 sent to hospital, and 16 invalided from the service. There were 2 deaths. The number of enlistments was 332, and 794 were reexamined for verification, making the total of examinations 1,126. Many improvements are needed.

U. S. S. Hancock.—The health of this ship has been excellent, the percentage of sick being 0.332. With the exception of tonsilitis and an invasion of a mild type of grippe, there was no epidemic of infectious disease. There was 1 case of diphtheria, 1 of typhoid, 1 of erysipelas, 5 of pneumonia, 2 of measles, 1 of German measles, 2 of scarlatina, and 3 of tuberculosis, but prompt isolation of each case, and the observance of the usual prophylactic measures applicable to ships prevented the spread of any of these diseases.

Sanitary improvements of the ships were confined to a change in the position of the intakes of two of the air ducts of the ventilating system, it being found that the air distributed to living compartments by them was drawn from inclosed portions of the ship instead of the external air. Other improvements in the interest of health are needed.

The total number of those examined for enlistment or reexamined for verification was 1,302.

U. S. S. Lancaster (and auxiliaries).—The health of this command has been excellent, the percentage of sick being 0.62. The strictly sanitary condition of the receiving ship was good, but its appointments from a hygienic aspect are defective in several important respects. The ventilation of the berth deck is reported deficient, owing to an absence of outlets for foul air, and although a fresh supply is constantly forced in, the air becomes stagnant and vitiated. In the brig or the berth deck the air is particularly foul. During the winter months the compartment is overcrowded, and this fact was considered responsible for the development of numerous cases of tonsilitis. Fifty-two cases of the disease were admitted during the last quarter of the year, and nearly all were traceable to infection while in the brig. The general court-martial prisoners should be confined in a more suitable place while awaiting action.

Among other diseases of the general infectious class which appeared in the command during the year there were 15 cases of mumps, 9 of measles, 1 of smallpox, 1 of chickenpox, and 1 of cerebro-spinal meningitis. Most of these infectious cases occurred among drafts of men from Norfolk. No epidemics occurred and the "camp" was not used, except for a short time for isolation purposes.

The total number of men examined for enlistment or reexamined for verification was 364.

U. S. S. Texas.—From the time this ship went into commission (September 1, 1908) for receiving purposes at Charleston, S. C., the percentage of sick was very small, and no cases of sickness can be attributed to any unsanitary condition of the ship. No epidemics occurred. There were 6 admissions for malarial fever, but in none was the infection contracted at that place. Four of the cases were marines who had recently returned from Panama and gave a history of having had the disease while there.

If it is the intention of the department to make the *Texas* a permanent receiving ship, many structural changes and improvements in lavatory facilities, ventilation, and lighting should be made in the interest of comfort and health.

The total number of men examined for enlistment was 37. The general physical condition of applicants for first enlistment, taken as a whole, was rather below the average.

U. S. S. Philadelphia.—The health and sanitary condition of this ship during the year was excellent. There is nothing about her general arrangement and equipment as a receiving ship, or her medical record as such, deserving special mention. The principal diseases which occurred being mumps, 12 cases; measles, 1 case; gonorrhea, 13 cases; and tonsilitis, 13 cases.

The total number of men examined for enlistment was 859. Only 43 per cent of the applicants for first enlistment were accepted without waiver. A noteworthy observation in the examination of recruits at this station was the presence, in a considerable proportion of the candidates, of thyroid enlargement. Data and comments concerning this observation were published in the Naval Medical Bulletin of April, 1909.

U. S. S. Independence (and auxiliaries).—The health of this command was good during the year, the percentage of sick being 1.062. In February an epidemic of mumps and measles occurred on the *Independence*, and a partial quarantine was established. All bags, hammocks, and ditty-boxes were daily aired and exposed to the sunlight as long as possible. No men were transferred until ten days had elapsed after the appearance of the last case, and intercourse with the training station at San Francisco was prevented.

Owing to an epidemic of smallpox in Vallejo, during March, a quarantine was established which affected all but men of the ship's company, and everybody was revaccinated before leaving the ship.

In September an epidemic of enteritis developed which was traced to the water supply of Vallejo, from which this ship is furnished. In the interest of health a recommendation that the ship be equipped with a distilling plant was made and favorably acted upon.

The total number of men examined for enlistment was 580.

YARDS AND STATIONS (OTHER THAN TRAINING STATIONS) WITHIN THE CONTINENTAL LIMITS OF THE UNITED STATES.

Those who have watched the development of naval conditions ashore and are cognizant of the advances in preventive medicine, and who are appreciative of the meaning of both, can not be oblivious to the importance of careful sanitary supervision of yards and stations. By General Order No. 16, March 1, 1906, 1168*b*, since incorporated in the Navy Regulations, 1909, as article 1033 (2), medical officers are made responsible for a watchfulness over those matters which may directly or indirectly be prejudicial to health, and they are expected to keep the commanding officer informed and to guide him in the rectification of existing conditions. In this respect the monthly reports have a definite value as a means of fostering sanitary watchfulness, of keeping the commandant and the bureau in touch with matters bearing upon health, and of continually emphasizing the necessary improvements, but it was not the bureau's intention in recommending, or the department's intention in promulgating, the regulation that it should relieve medical officers of the logical procedure of bringing pressing matters to the attention of the immediate authorities whenever and as often as they might arise or come to notice. As a matter of fact there should be no delay in seeking to correct a sanitary defect. These matters should not be allowed to accumulate on memoranda and be brought to the notice of commandants for the first time in the monthly reports. These reports ought not to be the month's accumulation of observations, but rather a review of the sanitary work for the month, with a reiteration of those urgent matters which have been the subject of recommendation but which have not been acted upon, and additional recommendations concerning any new matters that may have just come to light. The bureau desires to be understood as wishing to contribute the very best that it may toward the successful administration of every naval command, and, in return, it only asks the interested and kindly cooperation of the commanding officers of yards and stations in carrying out the dictates of preventive medicine.

Success in these aims depends to a great extent upon an understanding and assistance from such sources, and in order to enlist the support of commanding officers, observed sanitary defects within the realm of their jurisdiction must be brought to their attention, not in the form of a criticism at the end of each month, but as information to be conveyed from day to day or as opportunity occurs, and conveyed in such a manner as to evince a spirit of good faith and honest purpose. This is the type of official intercourse which fosters a cordial relation and begets mutual confidence. It is a method of procedure which offers greatest promise of attention to important matters and insures the correction of existing defects within the means at the command of this particular authority and according to the ideas of his sanitary advisor. Much has already been accomplished by such combined influence to improve the sanitary condition of yards and stations. The reverse can do nothing but impede progress toward the most happy and lasting results in sanitary work. As an example it may not be amiss to mention the antimosquito campaigns which have been and are being carried on at Boston, Philadelphia, and Port Royal, and the benefits that have accrued from them. In addition to such indirectly beneficial prophylactic work as this the more active agents, such as disinfecting plants and incinerators for garbage and rubbish, must be employed. The latter should be furnished all yards and stations as soon as possible for use by both ships and station and so placed as to be convenient to all without offending æsthetic sense or comfort. The disinfecting plants should be furnished each yard or station where recruits are received, the type determined upon for New York and Philadelphia being considered best suited for the purpose of disinfecting the persons and effects of individuals. Again, preparation must be made for the emergency isolation of contagious and infectious diseases, but these, as well as proper recreation halls for enlisted men, would be supplied in connection with the system of barrack buildings recommended for recruits and the crews of ships undergoing extensive repairs.

In connection with the frequent visits of ships at navy-yards for repairs or otherwise and the varying naval force maintained at yards and stations it may be truly said that the water supply has a direct bearing upon the health of the service, and there is urgent need to know its purity by careful and thorough chemical and bacteriological analysis, as pointed out by Pharmacist Noyes in his article on this subject published in the Naval Medical Bulletin for July, 1909. No better example of the great need of a proper water supply at navy-yards can be found than in the many recent instances of ships, notably the *Connecticut* at Norfolk and the *Idaho* at Philadelphia, which developed flaws in the intimate connection between the valves of the fresh and salt water systems. At sea such an accident as the water in the salt system backing up under pressure through insecure valves into the fresh-water system would not be fraught with so much danger if prompt measures are taken to eradicate the defect, but when such an accident occurs while a ship is moored alongside a navy-yard dock in sewage laden water the consequences have been and may again be disastrous to health. It can not be too strongly urged that the water supply at all navy-yards be properly piped to the side of the docks and then by numerous tap connections be made available to ships for all purposes with the possible exception of mere flushing. If the auxiliary machinery of a ship is operated, this water could be then distilled for drinking purposes, but should all machinery be out of commission for a time, it would have to be used fresh from the pipes for drinking purposes, and, whether for ship's crews or the station force, herein lies the importance of knowing its potability. This statement applies with equal force to stations beyond the continental limits of the United States and to foreign ports frequently visited and at all the standard of purity of water of the vicinity should be a matter of record and accessible for the information of medical officers of visiting ships, so that an intelligent and reliable judgment may be formed as to the potability of water obtained, based upon a comparison of his analysis of the supply with the standard for the district. Without such standard data with which individual finds may be compared, it is impossible to reach anything like an accurate determination of the potability of a specimen from a given source. The method of obtaining this data concerning home stations as heretofore practiced is not sufficient. The trouble has been in the past that the chemist at the Naval Medical School who makes the analyses has not been assured that samples submitted are from the best and representative source or the source most depended upon, nor has he been given adequate information as to the source of supply, whether well, spring, or otherwise, and as to the character of the surroundings. It would seem, therefore, that these important determinations might be undertaken with greater promise of accuracy and reliability if, when possible, the analyst could himself visit various sources of supply for the purpose of collecting not only the specimen desired, but the facts which his experience has indicated as having an important bearing upon the quality of the water and as being indispensable to an expression of opinion as to its potability. To obtain the requisite data would require a considerable length of time and a great deal of work, but it seems that the results would warrant the undertaking and the findings in any given case would be serviceable for many years. In any event, samples sent in for anaylsis should unfailingly be accompanied by full description of matters which might have the slightest effect favorable or unfavorable upon the water in question.

The act approved May 30, 1908, "granting to certain employees of the United States the right to receive from it compensation for injuries sustained in the course of their employment," has largely increased the work of the Medical Department, incident to the care and the observation of the progress of injuries or sick civil employees, have imposed the need of additional medical officers at the yards and stations at home and beyond the seas. Before the passage of this act as a rule only those severely injured applied for treatment. Now many men apply for treatment of every injury, trivial or otherwise—some inspired by the thought that each one may be the beginning of a condition that will ultimately entitle them to benefits. None can be ignored, and a careful record must be made in each case for future reference. Considerable time in the aggregate is lost to the Government by the practice of stopping work and applying at the dispensary, if for no other reason than to have the injury recorded. The application of this law also calls for increased dispensary space and supplies and appliances. Unfortunately, there are not enough medical officers at present to supply the demand which this liability act has created for the examination and recording of physical data concerning all men under government employ within the jurisdiction of the navy, and the work in many instances, therefore, has fallen on already overburdened shoulders. This subject has been touched upon in the section "Medical Corps" and "Malingering." Its consideration under the latter head suggests the possible abuse of the benefit and the need that medical officers and others exercise discriminating judgment in attempting to determine the merits of any one case. It also suggests the need of uniform rules for the practical application of the law and of a system of records. The bureau is giving some attention to the form of the latter and hopes to receive suggestions from officers who have had experience in this new responsibility.

Navy-yard, Portsmouth, N. H.—The health and sanitary condition of this yard was satisfactory during 1908. There were no cases of illness that could be attributed to either the food, water supply, or drainage. The only diseases of the general infectious class that developed among the naval force of the yard were grippe, of which there were 13 cases, and measles, 1 case. The average complement was 153.7 and the average percentage of sick 0.548. There were no disease conditions which could be regarded as peculiar to the locality There were no deaths.

During the year 109 cases of workmen, injured in working hours, were treated at the dispensary. Only a few of these injuries were major in character; most of them were minor. All received "first-aid" dressing and some required transportation to their homes.

Navy-yard, Boston, Mass.—The health and sanitary condition of this yard was satisfactory during 1908. The average complement was 461 and the average percentage of sick 0.49. The general infectious class of diseases was represented by 19 cases of diphtheria, 4 of measles, 2 of mumps, and 2 of chickenpox. No disease conditions appeared which could be regarded as peculiar to the locality. There were no deaths. A vigorous antimosquito campaign was carried on during the spring and summer months with considerable success.

There was an average of 2,073 civilian employees during the year, and among these 593 cases of injury occurred. All received attention at the dispensary.

Naval torpedo station, Newport, R. I.—The duties of the medical officers of this station, while light, are sufficiently comprehensive, relating more to the prevention of disease than to treatment.

The sanitary condition of this station was satisfactory and the health of the personnel during 1908 was fully up to the high standard of preceding years. The average complement was 160.68 and the average percentage of sick 0.707. There were no deaths. Although measles, diphtheria, scarlet fever, and typhoid fever appear to be constantly present in Newport, only one case of epidemic disease (measles) appeared at the station. Certain important sanitary improvements have been accomplished, but others are urgently required, and among these the need of a good water supply is predominant. Apparently nothing but fortunate chance has prevented an epidemic of water-borne disease in Newport and, of course, at this station. The installation of a distilling plant is the only possible solution of the problem.

The average number of civilian employees was 230. Of these 20 were treated for minor injuries and 98 prescribed for in emergency medical treatment.

Navy-yard, New York, N. Y.—The health and general sanitary conditions during 1908 have been satisfactory. The average complement of the barracks was 454 and the average percentage of sick 1.82. The character of the disease which appeared was not such as to merit special comment and no epidemics occurred. There were two deaths.

The yard dispensary furnished first aid to 1,402 civil employees during the year, 44 of whom were transported to a civil hospital and then home in the yard ambulance. Among this number there was one death.

Navy-yard, Philadelphia, Pa.—The great area of the yard should allow its progressive development and along proper lines, and the sanitary condition should steadily improve. During the year the sanitary condition of the built-up and occupied portions were generally good, but there are large areas, as yet unutilized, which require clearing, leveling, and draining to make this condition satisfactory, and this work should be pushed as rapidly as possible. The condition of the region about the new dry dock was unsatisfactory owing to the unfinished state of the work.

The health of the personnel was good, but in consequence of the reconstruction work in progress at the naval hospital and the resulting limitation of facilities, the number of sick retained in the yard was, and will continue to be, larger than normal. There were 393 patients on the sick list during the year, the percentage of sick being 1.17 and the daily average of patients 3.74. The character and number of general infectious diseases which occurred are as follows: Grippe, 29 cases; typhoid fever, 2 cases; malaria, 114 cases; pneumonia, 1 case; measles, 3 cases; and mumps, 1 case. Venereal diseases were responsible for 62 admissions.

The marine barracks is reported to have been at times much overcrowded, and it is hoped that additional accommodations will be authorized and also that the occupants of the present barracks may be properly protected from mosquitoes by screens for doors and windows. With the large number of men infected with malaria that were received there from Cuba, Porto Rico, and the Canal Zone, and with the reported abundant presence of the anopheles, conditions are favorable for a wide spread of this disease among the force at that yard unless effective precautions are taken. The antimosquito campaign which is being carried on at this yard can only hope to reduce the prevalence of the insect, and screening, therefore, must be extensively employed.

A new dispensary, including accommodations for the pharmacist or hospital steward attached to the yard, should replace the present building, which is old and unsuitable for the purpose in point of character and size. The establishment of the disinfecting plant, though this apparatus is already on the ground, has been delayed by the indecision as to where the permanent location of the receiving ship and dispensary, etc., will be.

The yard dispensary gave first aid and emergency treatment to a large number of civil employees, of which 357 were surgical cases and 12 medical cases.

Naval Academy, Annapolis, Md.—The general health of this station for the year 1908 was very good. The total number of sick days for the year amounted to 4,240 for an average complement of 1,343, which, as compared with the previous year, is a decrease of 661 sick days and an increase of 22 in average complement. This apparent improvement, however, is due to the fact that the hospital at this station was in operation and that 524 patients were transferred to it for treatment. The principal causes of disability were for diseases of the general infectious class, of the visual, digestive, cutaneous, and genito-urinary apparatus, and of the respiratory and nervous systems, and for injuries. Infectious diseases were represented by 209 cases of grippe, 2 of diphtheria, 20 of mumps, 47 of German measles, 1 of scarlatina, and 1 of chicken pox. There were 5 deaths.

During the early months of 1909 it seemed desirable that all serving at this station should be more fully informed as to the general nature of the various contagious diseases and the prophylactic measures applicable to them. The senior medical officer, Surg. C. F. Stokes, therefore, drafted a circular of explicit instructions designed to prevent the spread of contagious diseases, in which the subject was treated under three heads—"General instructions to be observed * * *," "Contagious diseases dangerous to life," and "Contagious diseases disabling but not considered dangerous to life." This circular was prepared in verbiage intelligible to the lay reader and represented a most important step in the effective control of such diseases at this station. It was approved by the superintendent and published on March 12, 1909, for the information and guidance of officers and others attached to the Naval Academy. In the belief that the information contained in the circular in the form in which it is there presented will be of value to medical officers throughout the service, the full text will be published in the Naval Medical Bulletin.

The special disease which in the spring of 1908 received the searching attention of the medical officers of this station, particularly Asst. Surg. C. W. D. Bunker, was the parasitic infection (*tænia genitocruralis*). Doctor Bunker, after a careful study of the subject, formulated a routine procedure for the control of the infection and its gradual extermination, and under the system which he outlined and recommended there is hope of freeing the academy of a contagion with which midshipmen have suffered for years.

The Commissary Department seems to have been operative during the past year on a more satisfactory basis as regards contentment and broad hygienic requirements. The food is reported as of excellent quality, sufficient in quantity, and carefully prepared. Regular inspections insure the maintenance of the high standard attained in the commissary, and among other innovations looking to this end two midshipmen were appointed to act as assistant commissaries, in which capacity they are in position to voice the preferences of the brigade and to indicate changes in accordance with the desires of their associates. The superintendent and the commissary officer interested themselves very actively in seeking to obtain an excellent supply of milk for the academy, and as the result a contract was made with a dairy farmer to furnish this article of food under conditions which insures a high grade. It is expected, however, that the medical department of the station will keep a watch on the quality of milk supplied and ascertain by appropriate tests from time to time whether or not the contract standard is being maintained and that the milk is free of any dangerous content.

The teeth and the eyes of the midshipmen were supervised with extraordinary care during the year. The required standard in both for admission has been rigidly exacted and the opinion of specialists in these two branches of physical knowledge who are made subject to the board's needs is consulted in unusual or doubtful cases. It is this practice which explains the larger number of those stamped as physically defective during the past year as compared with previous years. The test card and box which has been employed in the examination for visual accuity and which was devised by Surg. E. J. Grow has been commented upon under "Recruiting."

For several years the bureau has anxiously observed the deterioration of the vision of midshipmen and repeatedly urged serious consideration of the matter with a view to correcting defects in illumination and other factors contributing to these results. In spite of the bureau's efforts to awaken an appreciation of the serious aspect of this state of affairs and to stimulate remedial action, little of a definite character was undertaken, and the succeeding years were marked by an increase of visual deterioration. In the early months of 1909 the findings of the Medical Examining Board for the semi-annual examination of midshipmen became so striking in this respect that the Secretary of the Navy was led to make careful inquiry as to the cause, and this inquiry eventuated in the recommendation that Medical Inspector J. D. Gatewood be ordered to investigate the question of artificial illumination of study rooms at the Naval Academy, to report his judgment in the premises, and to make recommendations concerning changes considered advisable to improve the existing system of lighting, so that eye strain may be prevented or reduced to the minimum.

In the bureau's indorsement upon the official report, submitted June 21, 1909, it was recommended that the suggested improvement "be introduced at the Academy before October 1, in order that the present class may benefit by this change."

Believing the department of hygiene and physiology to be quite as important as the other departments of instruction at the Naval Academy, the bureau, on January 22, 1909, invited the attention of the Secretary of the Navy to the necessity of adopting such steps as would insure the best results in its conduct. It was requisite that the establishment of a separate department of naval hygiene and physiology be authorized and that the senior medical officer at the Naval Academy be designated the head of that department and to act as a member of the academic board. The Secretary of the Navy saw fit to grant this request and on February 15, 1909, ordered the establishment under the conditions above outlined.

The extreme importance of inculcating in this body of midshipmen, designed to be responsible officers in future, comprehensive ideas regarding the value of hygiene and sanitation in relation to service efficiency, as well as the value of forming a liking for the habit of exercise, is manifest. Naval and military hygiene has now assumed so prominent a part of naval organization, and the proper observation of its principles is so essential to military efficiency that the bureau considers it of the greatest importance to prescribe that these young officers shall be sufficiently well grounded in the principles of hygiene and sanitation to enable them to intelligently cooperate with medical officers in regulating the living and habits of the men who will later be under their command. It is timely, therefore, to emphasize the extreme importance of attaching a definite value in marks to this course, so that no midshipman could afford to neglect it without jeopardizing his final standing in his class.

The bureau expects on the part of the officers at the head of the department of naval hygiene and physiology at the Naval Academy an intelligent, earnest, and active interest in this and correlative subjects, such as the physical development of midshipmen, etc.

January 1, 1908, found the U. S. S. *Hartford* in quarantine for diphtheria, the last case of the disease having occurred on board that ship on December 30, 1907. Every precaution was taken in the way of fumigating and the use of antitoxin for immunizing and therapeutic purposes. Similar precautions were observed in handling the *Arkansas*, when a case of diphtheria appeared on board of her on January 15, 1908. There have been a few cases of scabies, mumps, grippe, etc., aboard ships at the Naval Academy, but none of these assumed the proportions of an epidemic. The health and sanitary conditions of the ships, with the exceptions above mentioned, have been very good.

On the whole the health and sanitary conditions of the Marine Barracks has been good. An epidemic of diphtheria assumed rather extensive proportions among the enlisted men during the early part of the year, but by the exercise of every known measure it was controlled and finally stamped out. A considerable number of cases of malaria (many of them relapses) developed among the marines who had recently returned from Panama, Cuba, and the Philippines.

Navy-yard, Washington, D. C.—The health and sanitary condition of this yard was excellent. The average complement was 315 and the percentage of sick 0.67. There was one case of typhoid fever among the officer personnel and three cases of measles among the enlisted force. Several mild cases of measles and whooping cough were under treatment among the children of the yard during the year, but the necessary precautions were taken and any spread of the diseases was prevented.

The objectionable features of the main foundry respecting ventilation, to which attention was noted in the last report, still exist, and it is recommended that some steps be taken to remedy them.

The Bellevue Magazine is in excellent sanitary condition with the exception of some of the plumbing in the three houses in the compound, changes in which were recommended by the medical officer of the yard and approved by the commandant.

The civil employees in the yard averaged about 4,000 during the year, 604 of whom were treated for injuries and 145 for sickness, and of these 10 per cent were sent to their homes and 4 per cent to civil hospitals in ambulance.

The number of examinations of applicants for enlistment was 504.

Naval proving ground, Indian Head, Md.—The health and sanitary condition of this station were excellent throughout the year. No disability referable to an insanitary condition or occupation has occurred either among the naval force or the civilian employees with the exception of a few cases of abdominal cramps, which occurred in the new workmen in the nitrating plant, and thought to be due to the fumes of sulphuric and nitric acid. There was also one accident of a serious nature, which resulted in death. No contagious or infectious diseases developed.

The water supply and sewage system are both beyond reproach. The water-closets adjacent to the stable and packing house are reported, however, as not being attached to the flushing system, and these accommodations are a constant source of surface contamination. It is believed that the pail system should be substituted for the existing water-closets at these places until such time as it may be practicable to install the flushing system.

An antimosquito campaign was carried on with satisfactory results, as at other stations.

Navy-yard, Norfolk, Va.—The general health and sanitary condition of this yard were satisfactory, and there was no occurrence worthy of special mention. Concerning the sanitary requirements of the yard proper, which have been more or less detailed in previous reports, the two most urgently needed are the paving of the main streets and passageways and the repairing and improvement of the surface drains.

Schmoele tract, the large addition adjoining the yard, is reported as furnishing ideal conditions for mosquito breeding, with numerous depressions in its surface holding water after rains, and the growth of weeds and high grass with which it is for the most part covered.

The work which has been done to correct these conditions should be carried on to completion.

The record of sick shows a large decrease from 1907, probably in part due to the smaller complement. The average complement was 376, and the percentage of sick 1.69. There were no epidemics in the yard proper.

Among the large force of civil employees in the yard 334 cases were treated, of which about 300 were surgical in character. Twelve of these were serious injuries. The ambulance was used 27 times to convey the seriously injured or very ill workmen to their homes or to civil hospitals. Two sudden deaths occurred—one from injury and another from heart disease.

The marine barracks, situated on Schmoele Tract, is reported as in excellent sanitary condition and well suited to the purpose, and though the buildings are surrounded by low, wet ground the efficient system of subsoil drains which has been established remove the worst features of this condition. It can not be positively stated that any ill effects, directly traceable to dampness, have been observed in the occupants of the barracks. Small epidemics of measles, 17 cases; of mumps, 12 cases; and of grippe, 26 cases, occurred among the marines during the early part of 1908.

Naval station, Port Royal, S. C.—The health of the personnel of this station during the past year was very good, 20 patients having been under treatment, of which one died. The sanitary condition of the station is reported as having been fair during the year and every effort has been made and every expedient employed to counteract any possible morbific influences or sanitary defects of the building and about the reservation.

Navy-yard, Charleston, S. C.—The health of the naval force at this yard was exceptionally good during 1908, and there were no epidemics. Malaria is the most frequent cause of sickness, though this disease is not so common at present as it has been in the past. Substantial progress was made during the year in the antimosquito campaign, and this work should be carried on as rapidly as the development of the yard will permit.

The most insanitary feature of the yard was the sewer drain, common to the sick quarters and marine barracks, which was defective in that it consisted in part of a small, open ditch. The facts in the case were represented to marine headquarters and steps were immediately taken to remedy this condition.

Naval station, Key West, Fla.—The health and sanitary condition of this station was very good. There were 65 patients under treatment during the year, but there were no cases of any importance. The sanitary work accomplished was largely antimalarial, as heretofore.

Navy-yard, Pensacola, Fla.—The health and sanitary condition of this yard was very good during the year. With the exception of 16 cases of influenza there was no epidemic and the only other noteworthy disease which developed among the naval force was malaria. Six cases were under treatment and some of these, if not all, were relapses in those recently returned from the Tropics. In all there were 99 patients under treatment during 1908 for various affections, but excepting those mentioned above none are of special interest. The average complement was 155.5 and the percentage of sick 0.822.

A number of sanitary improvements were accomplished and the sewerage system, which has been the most glaring defect, is receiving the much-needed attention. Antimosquito work was carried on during the year.

Naval station, New Orleans, La.—The health of this station was excellent and as compared with 1907 the records show a gratifying improvement. This is largely, if not entirely, due to the rapid development of the station along improved lines as regards construction, screening, water supply, and sewerage, etc., and to the energetic work of the medical department with respect to sanitary improvement of the reservation and general medical supervision.

There are a number of old buildings which should be abandoned and razed, but otherwise there seems comparatively little to be done to make the station entirely satisfactory in point of equipment and the sanitary requirements suggested by the disease influences peculiar to its location.

Navy-yard, Puget Sound, Wash.—The general health of this yard was excellent. There were no epidemics and only a few cases of grippe and mumps. In all there were 84 patients under treatment during 1908, with no deaths.

Two vessels were placed in quarantine at this station during the year—the *Kentucky*, on account of a case of varioloid on board, and the *Washington*, on account of a case of diphtheria. Both ships were sent to the federal quarantine station, at Port Townsend, Wash., for fumigation. There were no other cases. On account of the case of smallpox on the *Kentucky* radical steps were taken to secure by vaccination the immunity of the naval force and the civil employees. Strict precautions were also observed to protect the station against infection with plague, plague-infected rats having been found in Seattle as late as February.

The sanitary condition of this yard was excellent and improvement in its features from a sanitary point of view is going on.

During the year 243 case of injuries to civil employees were treated. These were of varying gravity and many minor operations were performed. One major operation was performed.

Navy-yard, Mare Island, Cal.—The general health of this yard was good. The condition of the yard is much the same as reported a year ago, but was satisfactory from a sanitary point of view. At the beginning of the year there was considerable apprehension that with the coming of mild weather and the greater activity of fleas there might be a renewed outbreak of plague. For the purpose of considering measures calculated to protect the station from infection a board was appointed. This board investigated the various methods of exterminating rats and made a report with detailed recommendations, which was published in the Naval Medical Bulletin. While some work was done along the lines indicated, rats still exist in considerable numbers on the island. There was, however, no recurrence of the disease during the year in San Francisco, and therefore Mare Island was not exposed to infection, but Medical Inspector F. Anderson believes that until these rats are exterminated or greatly reduced in numbers they will be a source of danger whenever the disease is brought to that port. The recent work of the Public Health and Marine-Hospital Service which resulted in the discovery of the disease among the ground squirrels on the west coast is of rather grave importance and lends force to the recommendations of the board above mentioned and to Doctor Anderson's expressed opinion.

In March there was an outbreak of smallpox in Vallejo, as mentioned under the receiving ship U. S. S. *Independence*, several cases developing among the employees of the yard, but the necessary precautions were promptly instituted and the epidemic did not acquire any serious proportions or invade the yard.

The epidemic of gastro-enteritis attributed to the Bacillus Gärtner, which followed the luncheon given on the occasion of the launching of the collier *Prometheus*, will be mentioned under the Mare Island Hospital.

During the year the average daily number of men in the barracks was 470, and as the accommodations are not sufficient for a command of that size many of the marines had to sleep in tents. Since January 1, 1908, 829 recruits were received from marine recruiting stations, of these only 27 were found to be physically disqualified for the service, representing a much smaller percentage of rejections than in previous years and indicating greater care and a better understanding of the requirements of the service on the part of medical examiners.

During the past year the daily average of civil employees was 2,845. There were 836 accident cases of varying degrees of gravity treated at the dispensary. In addition to these, remedies were administered in 90 cases of colic.

Three sudden deaths occurred on the island among the civil employees, but none of these were the result of injury. Two cases of injury resulted fatally after removal to Vallejo.

STATIONS BEYOND THE CONTINENTAL LIMITS OF THE UNITED STATES AND STATION SHIPS.

A general discussion of the sanitary needs of outlying stations as a group has been published in the two prcceeding reports, and as nothing new in this respect has developed during the past year it seems unnecessary to prolong these introductory remarks. Suffice it to say as regards the West Indian stations, that the hospital ship *Solace* is being equipped as rapidly as possible to fill the hospital needs in those waters in lieu of adequate hospital facilities ashore at San Juan, Culebra, and Guantanamo.

San Juan, P. R.—The health of the officers and men at this station during the year was excellent. Two cases of accidental drowning occurred in January, but there were no other deaths. A case of measles was found among the marines received from New York in January and two cases developed from this source, making the nearest approach to an epidemic of any kind. One case of mumps occurred on the *Peoria*, the source of which was not traceable, but no other cases followed. There was but one case of typhoid fever, and that was directly traceable to drinking unboiled water. The appearance of plague in Venezuela and Trinidad was a source of some anxiety and is a stimulus to sanitary vigilance and the enforcement of prophylactic measures. With the present poor means of communication and the effective quarantine it is believed that no reason for grave apprehension exists, though conditions are favorable in Porto Rico for the spread of plague should it gain a foothold on the island.

Culebra, P. R.—This station, with regard to its healthfulness and sanitary aspect, has been discussed at length in previous reports. Conditions have not changed to any degree during the past year. The island is small, and the natives are in such close contact with the station proper that it is hard to divide the causes of sickness between one or the other, except as regards food and water, which, among the natives, constitute, perhaps, the greatest morbific influence. Intestinal parasites and venereal diseases come next in the order named. Considering the habits of the people and their conditions and environments, the health of the island is, however, very good. One of the medical officers of the station continues to care for the native sick. The health of the station was excellent. Of 17 cases admitted to the sick list, 2 were sick when transferred to the station, 8 were venereal in origin, and the remaining 7, which were unimportant cases only, gave 43 sick days. Malaria, once a most prevalent disease at the station, has only been met with twice during the year.

The U. S. S. *Alliance* seems to be well adapted for use as a station ship. The health of the crew and the sanitary condition of the ship were excellent throughout the year, the percentage of sick being 0.705.

Guantanamo, Cuba.—The health of the naval contingent, of the civil employees, and of the laborers of the various yard departments at this station has been excellent. The sanitary condition of the station was also as good as could be expected under its state of development during the year and the climatic peculiarities. Many sanitary provisions are needed, but these it is understood will be furnished in due time. The question of amusement and liberty at this isolated station as bearing directly upon the efficiency of the command is one which merits the earnest attention of the authorities, as pointed out in previous reports.

The hospital facilities are inadequate, but as a matter of expediency nothing will be done to extend existing accommodations until the department has decided which of its West Indian stations is to be the principal. Experience during the past year has also indicated the desirability of establishing a quarantine station.

The U. S. S. *Newark* is entirely satisfactory as a station ship, as she is cool, well ventilated, and is kept in excellent sanitary condition. The sick bay is very good, but is only adequate for the care of the ship's sick.

Honolulu, Hawaii.—The health of this station was good, and very little serious illness among the enlisted force of the station occurred. The sanitary condition of the public buildings, station ship, and grounds in general was good. Some little anxiety was occasioned by the appearance of sporadic cases of plague on the island, and while the station was not invaded the indication is plain that proper precautions must be observed for the protection of the naval contingent.

Guam, Marianas Islands.—Detailed report of this island for the past two years has been published in the United States Naval Medical Bulletin (vol. 3, No. 3). It will therefore be sufficient to say in this place that the health of the naval contingent on duty at this station was good and that the sanitary conditions have been vastly improved. The average complement during the year was 157, and there were 129 admissions to the sick list, which gave a total of 2,122 sick days. Much excellent professional work has been done by the naval surgeons among the native sick, particularly those sick with guha, gangosa, and leprosy. In the treatment of the last of these diseases mercury is now being experimented with, but it is still too early for even a tentative determination as to the efficacy or the reverse of this drug in the treatment of leprosy. The station ship offers nothing of hygienic or sanitary interest save the question of the monotony of the life on board.

Tutuila, Samoa.—The health of the naval personnel of the station was unusually good, showing only 2.97 per cent of sick for the year, a large portion of this being for venereal disease and the majority of the remainder being among the native guard for lymphatic disease. One death is recorded as a suicide. The buildings and grounds of the station were kept in good sanitary condition, and noteworthy improvements are being made, an excellent new barracks for the native guard having been completed and a new hospital being in prospect.

Two slight epidemics of dysentery, apparently of the bacillary type, occurred among the natives in February and December, respectively, and during the former 7 of the naval personnel were affected. Both outbreaks, however, were speedily suppressed by proper measures. At these times, and throughout the year as well, much valuable professional work was done by the medical officer among the natives.

The U. S. S. *Annapolis* is, with few trifling exceptions, in excellent sanitary condition and well fitted for the purposes of a station ship. The health of the ship's company was excellent.

Cavite, P. I.—The health and general sanitary condition of this station during the past year was good. The most prevalent infectious diseases, as in former years, have been dengue fever and malaria, though fewer cases were treated than during 1907. There were also 26 cases of dysentery and 9 cases of measles among the naval personnel.

In the environs of the station there were epidemics of smallpox and cholera, but these diseases did not invade the station proper owing to the adoption of rigid precautions. There were 237 recorded accidents and medical emergencies among the yard workmen treated at the dispensary during the year, and 337 examinations for enlistment and reenlistment.

There are a number of provisions which are urgent hygienic necessities at this station and which have been repeatedly recommended. Among the more important of these are a station bakery, a station laundry, a station incinerator, and suitable sick quarters. A disinfecting plant should also be constructed. It is hoped that in the near future they will be furnished.

Olongapo, P. I.—The general health and sanitary condition of this station was very good during the year. The percentage of sick was 1.64. This record was at the expense of constant vigilance on the part of medical and commanding officers, as malaria, dengue fever, and venereal diseases are prevalent, and the station was threatened with a possible epidemic of smallpox three times and by a small epidemic of cholera during the year. Much valuable professional work was done by the medical officers among the natives of the town. The same hygienic provisions mentioned as necessary to the Cavite station are required at this station.

MARINE HEADQUARTERS AND MARINE DETACHMENTS.

Situated as many of these commands are, in distant, more or less isolated, and, for one reason or another, sanitarily neglected localities, it must be plain that they should receive especially careful attention with respect to questions of moral, mental, and physical hygiene. All reasonable provisions should be made and every proper measure should be observed to conserve health and foster contentment. It is incumbent upon medical officers to study military hygiene and keep abreast with its advances in order that they may guide in the effective application of its principles under those conditions in which they find the various detachments placed. It is a gratification to be able to report a manifest appreciation of this responsibility on the part of medical officers serving with these commands, and that their sanitary and other professional duties have been carried out with enthusiasm and efficiency. This service, however, is attended with certain difficluties which at times have become embarrassing, owing to the inadequacy of the regulations covering the medical department in the field. The marines operate under both navy and army regulations, as circumstances may require; and, as the Medical Department is the only branch of the navy to serve with the marines in independent command, it is respectfully submitted that either the navy regulations should be amplified to meet the peculiar conditions or the army regulations should be authorized to apply wherever navy regulations are not adaptable. Some such expedient would enhance the homogeneity of marine commands and simplify the practical performance of duties. For correlated reasons also the question of uniform for medical officers while serving with marines is deserving of the department's attention. The white uniforms of the navy are not suitable for field service, according to the latest ideas on this subject; and, while it is understood medical officers generally assume to follow the long-tolerated custom of adopting the khaki uniform when assigned to exclusive duty with marines, the practice is not sanctioned by regulation. The reasons for so doing are potent, however, and though the bureau has no desire to suggest additions to the already long list of required uniforms, it would seem that the necessities of the case would be satisfied if the practice were authorized as optional. This question applies with equal force to members of the hospital corps serving with marines, although it is submitted that it would be a hardship to require enlisted men to provide two outfits of uniforms, they already being compelled to maintain their naval uniforms.

Marine barracks, Washington, D. C.—The health and sanitary conditions of this post during the past year have been eminently satisfactory. It has been singularly exempt from cases of infectious and contagious diseases. There were but 2 cases of typhoid, both said to have originated outside the post; 11 cases of measles; mumps, 4 cases; and this, despite the fact that there were from 50 to 70 boys, among whom these affections are liable to spread. Only 1 case of tuberculosis was discovered. Tonsilitis was a fairly prevalent affection, and during the last half of the year many cases of malaria occurred. This disease was practically confined to marines who had recently returned from Camp Elliott and was the redevelopment of infections acquired in Panama.

Camp Columbia and outposts, Cuba.—This command, designated the First Provisional Regiment, U. S. Marine Corps, and cooperating with the army forces, broke camp and was returned north during the last days of 1908. Its health during the year was remarkably good, as reported for the previous year. There were no epidemics, and the minimum of sickness occurred, venereal and parasitic skin diseases and other cutaneous infections being the most common. This excellent record is due to the vigilance of medical officers and the prompt action of commanding officers as regards sanitary precautions, for with the possible exception of headquarters the provisions at the various camp sites were deficient and makeshift in many particulars. The food was good; all water for drinking purposes was sterilized; all garbage and other refuse was burned, and the clothing was suitable. There was no incident in the history of the command, bearing upon hygiene or sanitary considerations, which deserves special comment in this place. The service of the medical officers and members of the Hospital Corps attached to this command have been commended by the senior medical officers of the army and much good professional work was done among the natives of the different districts.

Camp Elliott, Isthmian Canal Zone.—The general health of this command has on the whole been good, the greatest cause of sickness being malaria, as heretofore. The malaria rate was higher than elsewhere on the Canal Zone, and, while some of this is attributable to the fact that many of the men spend their evening liberty in close proximity to a highly infected native population and without protection against mosquitoes, a large number of cases acquire infection within the camp limits. There were no epidemics. The food was good, all water for drinking purposes sterilized, all garbage and other refuse burned, and the clothing suitable. Many improvements were made in the building, and the construction of an amusement hall has added greatly to the comfort and health of the enlisted men. All the usual precautions to preserve health were observed, and every practicable sanitary measure was employed. The average strength of the command for the year was 409 and the daily average of patients was 14.17. One death occurred following a second operation for liver abscess. A number of cases were transferred to the United States, among which were 12 cases for Pasteur treatment after bite by a rabid dog.

Sitka, Alaska.—The health and sanitary condition of this command was as good as could be expected in that climate and with old living quarters, which are deficient in many important respects. Aside from one case of pneumonia no serious illness is recorded, as far as the service personnel is concerned. Much valuable professional work was done by the medical officer among the natives of the district.

Midway Islands, North Pacific.—This station was abandoned as a marine corps post on March 18, 1908. The health record of this post for the brief period included in this report was excellent. Nothing deserving of special notice occurred.

Polloc, P. I.—This station was kept in good sanitary condition during the year and the health of the personnel was excellent. No diseases occurred epidemically.

Legation guard, Peking, China.—No changes of special sanitary interest were made in the buildings or grounds of the station during the year. The personnel of the command, however, experienced a change in September of 1908, 74 men being sent home and 84 being received. This change created the need for first-aid and sanitary instruction by the medical officer, and in carrying out this duty particular emphasis was laid upon the prophylaxis of cholera, typhoid, dysentery, and venereal diseases. The health of the command was good during its life in barracks, and the practice march which was substituted for the summer encampment was followed by no ill consequences. Veneral diseases continued to be the most important factor in loss of service to the command from sickness.

HOSPITALS.

A consideration of this subject must inevitably bring to mind the striking contrast between the hospital service of the navy at this time and a period not ten years past, when practically every hospital was obsolete and otherwise antiquated, unattractive, and inadequate, both in point of capacity and professional standards. But comparison with the old is not necessary to establish the superiority of the new. In the main, naval hospitals to-day conform to every modern requirement and contain every improved facility for the work which medical officers, cognizant of every material advance in medical science, have to do in them. Those that are still behind the times in construction and equipment are being renovated or replaced as rapidly as possible, and when the projected plans have reached completion, there will be no system of hospitals which in its entirety is more thoroughly prepared for the humane and skillful treatment of the sick. The evolution of the naval hospital service to this indicated state of efficiency is the result of a determination that those disabled by disease or wound in their country's services should have the best, which, in turn, was the outgrowth of a belief that they deserved all that insured them the fairest chance of recovery and future usefulness. And "the best" means economy in the long run, for construction which lessens the possibility of the collection of dirt and germs reduces the amount of labor required to keep an institution clean; the introduction of labor-saving devices conserves time and enhances administrative efficiency; and the presence of instruments of precision for the scientific investigation of sickness and of appliances for wise and effective treatment minimize sick days and pension claims. Among the more important recent items of new equipment added to some of the hospitals are hydrotherapeutic rooms and automobile ambulances, both of which occupy places of importance in the movement toward a general improvement of the most practical sort.

The modernizing of hospitals in point of construction and equipment is, however, but one feature of this service in which the bureau seeks to meet the requirements in efficiency and economy. The question of organization and administration have received the earnest attention of the bureau and, though it involves numerous matters of importance, this general statement must suffice except for a brief reference to some associated special subjects.

On December 19, 1908, a circular letter calling for a report on every feature of hospital equipment, organization, and administration was sent to the commanding officer of each hospital. These data were desired by the bureau in order that it might be fully advised as to the existing condition of the several hospitals and know their respective deficiencies with a view to supplying the needs, perfecting organization, and unifying administration. In this connection the bureau feels that the time is rapidly approaching when some provision for the more frequent and systematic personal inspection of naval hospitals than is now possible by the Surgeon-General, with all his other mainfold and exacting duties, will have to be made. The size, number, and growing importance of naval hospitals and the increasing financial responsibilities imposed by these institutions, together with the new construction under way and in prospect, and the greater service activity, all combine to make regular inspections of this nature by a selected representative of the corps, who shall be in touch with the bureau and familiar with its aims, both desirable and necessary. The appointment of a qualified senior medical officer to this duty as inspector-general of naval hospitals would be for the purpose not only of enhancing their efficiency from a professional standpoint, and observing that due economy is practiced, but of effecting a uniformity in equipment, organization, administration, and discipline as regards those innumerable details which can not be covered by explicit rules.

The importance of a numerically as well as professionally adequate medical staff in hospitals was touched upon in the section "Medical Corps" of this report, and in previous reports it has been pointed out that as the proportion of patients to a given number of medical assistants is increased beyond certain well-defined limits, just so surely is the possibility of proper supervision of individuals diminished and the risk of failure to gain favorable results in those admitted to hospitals courted. There should be at least one medical officer to every fifty patients, or the probability of this number, exclusive of commanding and executive officers, and in addition there should be one officer for duty in the laboratory. Certain it is that in the evolution of the modern hospital emphasis must be laid upon the bedside study of every case in conjunction with which there are no services of greater value in the establishment of a correct diagnosis and in indicating a rational line of treatment than those of the laboratory worker. From such a study with every means of modern science at hand is that certain and immediate information as to the nature of a lesion, the kind of infection, or the state of the metabolic processes of the body to be obtained. This department of hospital work should not be neglected—its development is the most prominent distinctive feature separating the old-time hospital from the present-day institution. Its studies in pathology, bacteriology and clinical chemistry not only aid in bringing a case to the enjoyment of recovered health,.as the ideal conclusion, but contribute to the sum total of medical knowledge and the successful management of similar cases in the future. Yet in spite of these recognized truths, it has been impossible, owing to the shortage of medical officers, to entirely comply with requirements in this direction during the past year.

In the spring of 1908 the department invited the bureau's attention to the increasing frequency of the escape of general court-martial prisoners from the United States naval hospitals, and directed that greater precautions be taken in the future to prevent such occurrences. The problem for caring for sick prisoners in general hospitals had long been a matter of concern and led to repeated recommendation that proper provision be made for their treatment, with the possible exception of unusually serious cases, inside of prison compounds. The bureau's consideration of the possibility of refractory prisoners becoming inmates of hospitals was in part responsible also for the request that marine guards be regularly detailed for sentry and police duty at various hospitals, particularly in connection with prisoners admitted as patients. Immediately following the action of the department in placing responsibility upon the commanding officers of hospitals for the safekeeping of prisoners under treatment and directing greater precaution to this end, the bureau took the necessary steps to prepare one room or a small ward at each hospital for the secure detention of patients under sentence of a general court-martial by placing bars on the windows and providing grill doors. This provision, as a means of complying with the department's order, was completed early in the fiscal year 1909, and since this time no instance of escape has been reported.

It is the intention of the bureau that the hospitals shall be conducted in such a manner as regards order, quiet, cleanliness, and general efficiency that all patients may derive the fullest possible benefit from their treatment. A pleasant environment is now universally accepted as having a most marked influence for good on the progress and efficiency of treatment in physical as well as mental conditions. Moreover, a cheerful and contented state of mind of patients and attendants is sure to react beneficially upon the sick, and it is therefore a most potent asset for success in the work of hospitals. Both the conditions and the disposition above mentioned, as valuable therapeutic agents, the bureau endeavors to foster by every available means. In furtherance of this aim a circular letter was addressed to the commanding officer of each hospital on January 22, 1909, in which it was directed that thereafter inspections and musters were to be carried out on some week day other than Sunday, and that in strict conformity with the naval regulations care was to be observed that all work in hospitals is reduced to the possible minimum on Sundays.

The general reduction noticed in the number of patients treated in the different hospitals, particularly on the east coast, during the past year is attributable to the absence of most of the larger ships on the cruise around the world and the employment of the hospital ship *Relief* in relieving the fleet in large of part of its sick.

The tubercular sick of the service have not been retained or given prolonged treatment at any of the general hospitals, except in an occasional isolated case, but have, as a rule, been promptly transferred to the naval hospital, Las Animas, Colo.

The lesson to be learned from the excellent experiences afforded by the camps at the Norfolk Hospital during the period of its reconstruction suggest the idea that a similar summer camp should be opened every year at all hospitals for practice and incidentally for the purpose of permitting the fumigation of all buildings, whether showing signs of infection or not.

The respective needs of the different hospitals have been considered in the section of this report dealing with "New construction * * *" and a statement of the cost of maintenance, including expenditures necessary for the preservation, sanitation, and structural soundness of the institutions, is to be found under "Hospital fund."

Portsmouth, N. H.—The adverse comments that have been embodied in reports received from this hospital in recent years, in so far as location, condition, and adequate facilities for accommodation of patients are concerned, still hold good. However, though this building is not up to modern requirements and its appointments antiquated, good work has been done in both medical and surgical cases. There were 184 patients under treatment during 1908, a slight increase over 1907, but there was no epidemic of any kind that this hospital was called upon to handle. The only contagious diseases which were received during a period extending over six weeks were diphtheria and mumps, and these were promptly isolated and never reached above two or three cases. The results of operative work were most satisfactory. In all, 17 major and 9 minor operations were performed. Not a single case of infection is on record, and with the exception of one case of adeno-carcinoma of the cecum and appendix, which died on the ninth day after operation, all have resulted in apparent cures. But once in the year was the capacity taxed. When the U. S. S. *Maine* was at the yard every bed was occupied most of the time, and accommodations for three cases had to be improvised elsewhere. In the future those large ships for which the department intends Portsmouth, N. H., to be the home port, together with the several small ships that will probably repair there and the large number of prisoners confined at that station, will furnish more sick than the hospital can accommodate. A new hospital is urgently needed, and in view of the prospect that one will soon be constructed on the site recently assigned for the purpose, no construction work, except minor repairs necessitated by the deterioration incident to occupation, has been done during the year.

Chelsea, Mass.—The most important matters concerning this hospital upon which the department should be informed will be discussed in the section "New construction * * *." The limits of this report forbid any attempt at a detailed statement of the many extensive changes which are necessary on the reservation and in hospital facilities. Suffice it to say here that a new hospital, for which plans have already been drafted, is soon to be built on a new site overlooking the old hospital, and that the improvements in the accessories to the main buildings of the institution and in the grounds will be accomplished as far as possible while the new construction is going on. None but the necessary expenses for the general upkeep has been incurred.

There were 575 patients under treatment during 1908, a decrease from 1907. The surgical cases included 22 major and 69 minor operations of varying degrees of gravity. The medical service included a broad range of diseases, many of which were serious in character, the greatest number of admissions being for affections of the genito-urinary and digestive apparatus, of the respiratory tract, and of the general infectious class. The professional work done at this hospital was satisfactory. There were 7 deaths.

Narragansett Bay, R. I.—There were 1,035 patients under treatment at this hospital during 1908, a decrease from 1907. The surgical cases included 77 major and 125 minor operations of varying degrees of gravity. The medical service included a broad range of diseases, the greatest number of admissions being for affections of the genito-urinary apparatus, of the respiratory tract, and of the general infectious class. Among the many cases of serious character were 3 of cerebro-spinal fever and 32 of pneumonia. The professional work at this hospital was satisfactory. There were 9 deaths.

In view of the early prospect of a new hospital at this station, none but necessary expenses in repairs, etc., for the working efficiency of the hospital have been incurred during the year.

New York, N. Y.—There were 863 patients under treatment at this hospital during 1908, which is an increase over 1907. The surgical cases included 71 major and 49 minor operations of varying degrees of gravity. The medical service included a broad range of diseases, the greatest number of admissions being for affections of the nervous system, of the digestive and genito-urinary apparatus, of the respiratory tract, and of the general infectious class. The professional work at this hospital was satisfactory. There were 12 deaths.

The expenditures at this hospital incident to repairs, etc., for its maintenance in a state of working efficiency have been comparatively small. The bureau, however, hopes for extensive remodeling to bring this hospital up to modern requirements to meet the service needs at this station, and plans are being laid down on a comprehensive scheme in order that any repairs being made on account of urgent necessity may harmonize with the whole institution when completed.

Philadelphia, Pa.—There were 526 patients under treatment at this hospital during 1908, which is a slight decrease from 1907. The surgical cases included 48 major and 25 minor operations of varying degrees of gravity. Among these there was no case of serious infection.

The medical service embraces a large proportion of chronic affections, owing to the fact that all cases developing among the inmates of the Naval Home are admitted to and cared for in the hospital. The greatest numbers of admissions were for affections of the nervous system, of the digestive and genito-urinary, respiratory, and circulatory apparatus, and of the general infection class. The professional work at this hospital was satisfactory. There were 11 deaths.

In view of the early prospect of carrying out the plans for the complete renovation of this hospital, none but absolutely necessary repairs were made, and the expenses of such were held down to the minimum.

Annapolis, Md.—While this is a general station hospital and receives patients from any source, its most important function is the care of the serious cases of sickness from the Naval Academy—midshipmen and others. There were 647 patients under treatment during 1908, more than double the number in 1907. The surgical cases included 35 major and 94 minor operations, of varying degrees of gravity. The medical service included a broad range of diseases, the greatest number of admissions being for affections of the genito-urinary apparatus, of the general infectious class, and for injuries. The professional work at this hospital was satisfactory. There were 5 deaths.

The capacity of the hospital was taxed on several occasions, particularly to accommodate those suffering with contagious and infectious diseases, and the extensions now in process of construction are greatly needed. Expenditures incident to repairs have been insignificant.

Washington, D. C.—The old hospital is devoted largely to the purposes of the Hospital Corps Training School, its purely hospital work being concerned only with the care of venereal, parasitic, and general infectious diseases. There were 238 patients under treatment during 1908, about the same as in 1907.

The health of the hospital apprentices under instruction was good. Out of a total of 105 students in the three different classes only 7 were admitted to the sick list. The professional work was satisfactory and there were no deaths.

Repairs and improvements to the building have been of minor importance and did not entail great expense.

The Medical School Hospital was maintained and managed during the year on a plane of efficiency in general satisfactory alike to the bureau and to the patients treated. The excellent record which was attained is in part due to the nurse corps, the members of which received the practical side of their training in naval methods at this hospital before transfer to other hospitals. The results of their services at this hospital are already apparent in the way of closer attention to those minor details of nursing which contribute so much to the comfort of the sick and which are intuitive in women, but almost unattainable in men; by the marked improvement in the preparation and serving of sick diet, and by the orderly "manners" prevailing in the wards due to their presence. The hospital corps men on duty at this hospital must also be accorded commendation for their share in the excellence of the work of this hospital. On the whole, they have conducted themselves most creditably and performed very efficient service.

The total number of patients under treatment during 1908 was 629, of which 141 were officers and 35 were supernumeraries. The surgical cases included 85 major and 60 minor operations, of varying degrees of gravity. The medical service includes a broad range of disease, many of which were serious in nature. There were only 3 deaths.

Much work has been done on the hospital interior in the way of alterations and repairs and the painting of walls and woodwork, due to constructive defects. Some changes were necessary in the ventilating system, and it is now satisfactory, keeping the air fresh and sweet even when all beds are occupied and the windows closed in cold and inclement weather.

Norfolk, Va.—The hospital at this station has been undergoing extensive reconstruction and enlargement during the entire year, and the professional work has been accomplished under the greatest difficulties. Nevertheless it was satisfactorily done and its medical staff deserves much credit. There were 1,388 cases under treatment during 1908, with a daily average of 100 patients, which, though a decrease from 1907, is a large number to care for under the circumstances which have obtained. The greatest numbers of admission were for diseases of the general infectious class—of the genito-urinary apparatus, and for injuries. Seventy-three cases of typhoid were treated, many of which were apparently contracted by patients after entering the hospital for other conditions. As cases continued to occur in spite of the most careful isolation and the disinfection of all discharges and everything that had come in contact with the sick, it was believed that the infection was being conveyed by the food, and most probably the milk. This suspicion led to the sterilization of all milk, with the result that no more cases of the disease appeared. Of this entire series of cases but 2 died.

During the whole year the majority of patients and all members of the Hospital Corps on duty there were housed in tents, the number so accommodated ranging from 100 to 150 persons. This demand required the use of from 40 to 55 tents, according to the varying number of patients.

The report of the commanding officer, Medical Inspector P. A. Lovering, on the organization and conduct of the camp is extended, interesting, and valuable, in consequence of which it will be published in the Naval Medical Bulletin for the information of all officers.

The surgical cases treated at the hospital during the year included 16 major and 132 minor operations of varying degrees of severity. Many major cases were transferred to Washington on account of the unfavorable conditions which obtained at Norfolk, only urgent cases being operated upon there.

There were in all 21 deaths at this hospital during the year, pneumonia being the most prominent among the several causes.

Port Royal, S. C.—In the summer of 1908, when the station was turned over to the Marine Corps for use as the location for its School of Application, prompt steps were taken to put the small hospital at that place in good condition. The buildings were thoroughly renovated and completely equipped, and it is believed that the accommodations and facilities for the care of the sick now fully meet the requirements of the station. Only 4 cases were under treatment at the hospital during 1908. There were no deaths.

Pensacola, Fla.—There were 60 cases under treatment at this hospital during 1908, a slight increase over 1907. The surgical cases included 7 minor operations. The condition of the hospital remains unchanged since the last report. Only minor repairs have been made, and, though many improvements are needed, few have been undertaken in view of the extensive reconstruction contemplated. There were 2 deaths.

San Juan, P. R.—This hospital represents practically the only provisions for the care of the seriously sick in an important naval district, yet the uncertainty as to which of the several Caribbean stations will be made predominant in the future and a deference to the desirability that the hospital be located at the principal base has led the bureau to postpone further expenditure on any fixed establishment and to depend for the time being upon a hospital ship to meet all needs beyond the present capacity of this hospital. Should San Juan eventually be determined upon as the principal base and, in any event, should it seem advisable to maintain the existing small hospital, the present site, on a 40-foot bluff overlooking the sea, fully exposed to all the breezes and on the military road convenient to the city, is admirably adapted for the purpose. The one remediable defect as regards the entire suitability of the property for hospital uses lies in the fact that a small strip of land between the hospital and the edge of the bluff overlooking the sea belongs to the army. This strip is needed by the hospital and is being used as far as can be seen for no important purpose by the army. It is reported, in fact, that the very use to which it is now put constitutes a nuisance to the hospital, a civil employee of the quartermaster's department quartered in a small building in this land maintaining a large pigsty. Another constant menace to ideal sanitary conditions is the army corral, which is next door, and from which the hospital is infested by large swarms of flies. No doubt a request for the transfer of this strip of land to the navy, in view of the circumstances mentioned, would be gladly granted.

The buildings in use, but a makeshift in the beginning, are in a state of decay and rapidly undergoing further deterioration. Repairs are constantly required, but as they are costly and more or less ineffectual, only such have been attempted as were absolutely necessary to keep the buildings in anything like serviceable condition.

There were 91 cases under treatment during 1908, a considerable decrease from 1907, owing to the absence of the fleet from West Indian waters. The surgical cases included 4 major and 16 minor operations. The medical service in the past year consisted largely of cases of venereal diseases, nearly as many cases of this character as of all other diseases combined having been treated in the hospital. The professional work was satisfactorily performed. There were no deaths.

Las Animas, Colo.—A detailed report of the professional work of this hospital was published in the Naval Medical Bulletin, April, 1909, and showed a noteworthy record in the treatment and laboratory study of tuberculosis, a disease the victims of which this hospital was especially designed to care for. Enough has been said elsewhere concerning the routine and special methods of treatment employed; suffice it to say that the results observed and hitherto reported continued to be of a highly gratifying character, and further support the contention that in mercury the profession has a powerful ally in combating tuberculosis. It may be well to say that striking results from the employment of this therapeutic measure are being reported from civil institutions and from the practice of individual doctors in different parts of this country and from abroad.

There were 279 cases under treatment in this hospital during 1908. Only 161 of these, however, had been in the hospital two or more months when the report was made, and in view of the character of the disease and its usual sluggish response to the most beneficial environments and antituberculosis agents, it is only fair that the estimate of the degree of success attained by this hospital in fulfilling its function should be based on this number of cases. The others either left too soon for one reason or another, had been admitted too recently, or were too far advanced in the disease when admitted, and died before it was possible to have gained any beneficial influence over the disease. Of the total number of cases admitted for treatment during the year, 82 were discharged to duty as apparently cured and 17 died, while among those remaining at the end of the year there were a varying number of patients classified as "stationary" or "failed," or under headings indicating different degrees of improvement. It is to be noticed that the last group shows greater or less improvement according to whether the individual cases took mercury treatment or routine treatment solely.

A small epidemic of typhoid fever (8 cases) developed among the inmates or those serving at this hospital. The source of infection was believed to be the milk. Several patients who had been improving steadily up to the time they contracted this disease, and who recovered from it, succumbed subsequently to intestinal tuberculosis, because the damaged intestine furnished a favorable field for the growth of the tubercle bacilli.

Three major operations were performed during the year.

The wisdom of selecting New Fort Lyon as the site for the naval sanitorium for tuberculosis seems to be further vindicated by recent study of the blood-pressure records of tubercular patients. It seems to have been established by observation of a large number of cases of tuberculosis that in the active stages of the disease the blood pressure is low, but that as improvement takes place the blood pressure increases. It is well known that high altitude increases blood pressure, and it is a logical conclusion that the sequence of these two factors in their relation as cause and effect may be reversed and that by thus artificially raising the blood pressure improvement will be stimulated. This same principle seems to be involved in the method of treatment by obstructed inspiration recently suggested by Kuhn.

Sitka, Alaska.—The hospital at this place is an old log building constructed in 1842. It is in a bad state of repair and in many respects insanitary. Much had to be done to put it in the barest working condition and many improvements are still needed, but the bureau is inclined to postpone attention to these matters as long as possible, for the building does not warrant the expenditure of any large sum of money. It seems to be the best makeshift obtainable, and thus far has met the small requirements of the station. There were 19 cases under treatment at this hospital during 1908, a decrease from 1907. The surgical cases included 4 major and 11 minor operations. There were no deaths.

Puget Sound, Wash.—There were 380 patients under treatmentduring 1908, more than double the number recorded for 1907. In anticipation of the visit of the Atlantic Fleet to the west coast the capacity of the hospital was increased to 109 beds by the use of tents, but at no time was this temporary expansion filled. The surgical cases included 25 major and 26 minor operations of varying degrees of gravity. The medical service included a broad range of diseases, many of which were serious in character. The professional work was satisfactorily performed by detailing two medical officers who were attached to ships in ordinary at the navy-yard to additional duty at the hospital. There were 5 deaths.

Mare Island, Cal.—The number of patients treated during 1908 was 1,654, which is much in excess of any previous year in the history of the hospital. This was caused by the arrival on the coast of the greater part of the Asiatic Fleet and the visit of the Atlantic Fleet with an approximate force of 25,000 men. The greatest number of patients arriving in any one day was 155, and of this number the hospital ship *Relief* brought 135. In anticipation of the visit of the fleet, the bureau had amply provided the hospital against any emergency demand, so that the actual care of the patients was comparatively easy. The greatest number of patients in the hospital on any one day was 265. To accommodate this number of sick, 19 tents were erected on the graded plateaus in addition to the hospital building and the tents already in use. The surgical cases included 213 major and 123 minor operations of varying degrees of gravity.

There were no deaths during operations or that could in any way be attributed to operation. The medical service embraced a broad range of disease conditions and included many very serious cases. The laboratory facilities were extensively used as an aid in diagnosis and treatment, 2,241 examinations having been made, and the professional work in general was performed satisfactorily. There were only 14 deaths, giving a mortality proportion of 0.85+ of 1 per cent of the cases treated.

The laboratory of this hospital did a special piece of work, worthy of mention, in the isolation of the bacillus of Gärtner from beef sandwiches supplied by a caterer of San Francisco for a banquet given by the citizens of Vallejo, following the launching of the collier *Prometheus*, on December 5, 1908. A great number of people from near-by towns attended the banquet, and several hundred of them were made ill, one or more cases in citizens proving fatal. Samples of the different articles of food furnished were subjected to analysis by the state board of health, by the different laboratories in the vicinity of San Francisco, by the navy-yard chemist, and by the laboratory of this hospital. The last named, through the work of Hospital Steward G. O. Wildasin, was the only one which met with success in determining the cause of the illness.

Canacao, P. I.—There were 1,002 patients under treatment during 1908, of which 77 were supernumeraries. The hospital has continued, as in former years, to be a great blessing to the native element who are in need of surgical assistance. A hospital, under the management of Catholic sisters, is about to be established in the town of Cavite, and this will probably lead to a reduction in the supernumerary rate of admission to the naval hospital. The surgical cases included 98 major and 192 minor operations of varying degrees of gravity. The medical service included a broad range of disease conditions, among which malarial and venereal diseases were particularly prominent. There were a great many interesting and instructive examples of other diseases, and the laboratory department of this hospital was active in aiding diagnosis and treatment. The professional work was satisfactorily performed. There were 24 deaths, 7 of which were among the supernumeraries.

Yokohama, Japan.—There were 56 patients under treatment during 1908, a decrease from 1907. The reorganization of the fleet in the Pacific, which resulted in leaving only the vessels comprising the Third Squadron in the western Pacific and the consequent reduction in the personnel of the station, is in part explanatory of the diminished activity of this hospital for the period covered by this report. The battleship squadron of the Atlantic Fleet which was at anchor in the harbor of Yokohama for one week dating from October 18, 1908, contrary to expectations, caused no material increase in the work of the hospital, the total number of sick received therefrom being 12. The comparative inactivity of this establishment from a professional view point is reported to have been fortuitous, inasmuch as the prosecution of the work of rehabilitation, with new construction, had necessarily materially reduced the facilities for the convenient care of many patients. The professional work was satisfactorily performed. The surgical cases included 4 major and 17 minor operations. There was 1 death.

Surgical operations for the year ending December 31, 1908.

	Cases.	Cured.	Improved.	Unimproved.	Died.
HEAD.					
Cranium:					
Craniotomy for cerebral hemorrhage	1				1
Depressed fragments—					
Removed	2		2		
Raised	4	4			
Infected scalp wound, multiple incisions and drainage	1	1			
Mastoid exenteration	15	14	1		
Trephining for basal fracture, clot removed	1				1
Eye:					
Cataract operation	2		2		
Conjunctiva, wound of, sutured	1	1			
Ectropion, plastic	2	2			
Enucleation	4	4			
Foreign body, deeply embedded, removed	1	1			
Iridectomy	1	1			
Iridotomy	1	1			
Pterygium, operation for	18	18			
Trachoma, lids rolled	1		1		
Face:					
Abscess—					
Antral, sequestrectomy	1		1		
Aural, incision and drainage	1	1			
Carcinoma, excised	1		1		
Cellulitis left cheek, multiple incisions	1				[a] 1
Deflected septum, Asche's operation	3	2	1		
Epithelioma, excised	1		1		
Lachrymal duct, occlusion relieved	1		1		
Nasal polypi, removed	2	2			
Paracentesis of tympanum	23	23			
Removal of silver tube from Antrum of Highmore	1	1			
Tonsillectomy	70	70			
Neck:					
Abscess, deep cervical, opened and drained	2	2			
Angina, Ludwig's, free incisions	1	1			
Carcinoma, excised	2			1	1
Cervical adenectomy	8	6	1		[b] 1
Thyroidectomy	2	2			
Tracheotomy	1	1			
TRUNK.					
Chest:					
Abscess, right pectoral region, opened and drained	1	1			
Adenoma, mammary removed	1	1			
Arthrotomy, sterno-clav. joint	1	1			
Breast—					
Tumor, excised	1	1			
Fibroma, excised	1	1			
Empyema, Estlander's operation	23	19	2		[c] 2
Fibroma, excised	1	1			
Lung, abscess, opened and drained	1		1		
Mammary gland removed	1	1			
Thoracentesis	21				
Thoracotomy	1				[d] 1
Abdomen:					
Abscess—					
Abdominal, opened and drained	1	1			
Appendicular, opened and drained	2	1			[e] 1
Nephritic, opened and drained	1	1			
Hepatic, operation for	10	2		3	5
Peri-cæcal, opened and drained	1		1		
Peri-appendicular, laparotomy	1	1			
Subphrenic, opened and drained	2	2			
Appendicectomy	181	176	1	1	[e] 3
Appendicostomy	6	3	3		
Bladder, ruptured, sutured, and drained	1				[f] 1
Cæcumdectomy for adeno-carcinoma	1				1
Cholecystostomy	7	7			
Cystotomy, supra-pubic	1	1			
Cystic tumor, abdomen, evacuated	1		1		
Fibro-sarcoma, abdomen, removed	1	1			
Gastro-duodenostomy	1				[g] 1
Gunshot wound—					
Abdomen, laparotomy	2				2
Abdominal wall, cleaned and drained	1	1			

[a] Death result of purulent cerebral meningitis.
[b] Alaskan native. Death result of general tuberculosis.
[c] One death result of gangrene of lung.
[d] Death result of pericarditis.
[e] Advanced peritonitis.
[f] Supernumerary. Retro-peritoneal pus and pyophlebitis.
[g] Death result of pneumonia.

Surgical operations for the year ending December 31, 1908—Continued.

	Cases.	Cured.	Improved.	Unimproved.	Died.
TRUNK—continued.					
Abdomen—Continued.					
Herniotomy—					
Femoral	1	1			
Inguinal	185	184		1	
Strangulated	2	1			1
Ventral	7	6		1	
High forceps delivery (dystocia)	1				[a] 1
Intestinal fistula closed	1	1			
Intestinal wound sutured	2				[b] 2
Laparotomy—					
Exploratory	4		1	2	1
For intestinal obstruction	1	1			
Lithotomy, supra-pubic	1	1			
Nephrolithotomy	1	1			
Nephrectomy (pyonephrosis)	1		1		
Nephrotomy	1	1			
Peritonitis, deep drainage	5	2	2		1
Podalic version (Sitka)	1	1			
Rapid delivery (Sitka)	1				[c] 1
Uterus, carcinoma of, currettage (Sitka)	1				1
Rectum:					
Abscess—					
Ischio-rectal, incision and drainage	11	11			
Peri-anal, incision and drainage	1	1			
Condylomata, anal, excision	5	5			
Hemorrhoids, operation for	135	135			
Fistula, anal, operation for	63	63			
Rectal sinus, incision and dissection	2	1		1	
Genitals:					
Abscess, peri-urethral, opened and drained	1	1			
Circumcision	252	252			
Hydrocele, operation for	35	34	1		
Lipoma, penis, excised	1	1			
Orchidectomy	3	3			
Orchitis, incision for and drainage	1	1			
Perineorrhaphy	2	2			
Plastic, operation for destroyed glans	1			1	
Ruptured urethra sutured and external urethrotomy	2	2			
Scrotum, ablation	2	2			
Urethrotomy—					
External	4	3	1		
Internal	8	8			
Varicocele, operation for	152	152			
EXTREMITIES.					
Amputations:					
Finger	46	46			
Foot	1	1			
Forearm	1	1			
Leg	3	1		1	[d] 1
Thigh	3	3			
Toe	10	10			
Fractures:					
Clavicle, wired	1	1			
Femur—					
Wired	1	1			
Compound, small fragments removed	1			1	
Ununited fracture, Lane's operation	1		1		
Lower extremity resected	1	1			
Hand, multiple compound, suture replacement	1		1		
Humerus—					
Compound, small fragments removed	1		1		
Fragments wired	3		1	2	
Metacarpal, refractured and reset	1	1			
Metatarsal, compound, fragments approximated	1	1			
Patella—					
Compound, sutured	1		1		
Sutured	2	2			
Radius, compound, fragments approximated	1	1			
Tibia and fibula—					
Compound, bones wired	2	1		1	
Wired	1		1		
Compound, fragments approximated	1		1		
Ulna, ununited, steel plate inserted	1	1			
Ulna and radius—					
Compound comminuted, sequestrectomy and wiring	1				[e] 1
Refractured and reset	1	1			

[a] Alaskan native.
[b] Filipino and civilian. Death result of peritonitis.
[c] Alaskan native woman.
[d] Supernumerary—gangrenous, death due to tetanus.
[e] Death result of complicating spinal injury.

Surgical operations for the year ending December 31, 1908—Continued.

	Cases.	Cured.	Improved.	Unimproved.	Died.
EXTREMITIES—continued.					
Joints:					
Arthrotomy, left knee	1		1		
Elbow—					
Contracture, plastic operation	1	1			
Ankylosis of, adhesions broken	1	1			
Hip joint, dislocation, reduction	2	1	1		
Knee—					
Ankylosis of, adhesions broken	1		1		
Aspiration	4	4			
Floating body removed	2	2			
Incised and drained	2	1	1		
Peri-arthritis, operation for	1	1			
Bones:					
Astragalus, operative refracture for subluxation	1		1		
Exploratory for laminectomy	1			1	
Halux valgus, operation for	2	2			
Metacarpal, resection	1	1			
Metatarsal, resection	1	1			
Necrosis—					
Jaw, excision	1	1			
Nasal bone, excision	1	1			
Curettement	1			1	
Necrotic carpal bones, excision	1			1	
Necrotic bone, excision	10	8	2		
Osteoma, excision	4	2	2		
Osteomyelitis, incision and drainage	3	3			
Periostitis, curettment	5	5			
MISCELLANEOUS.					
Abscess:					
Axillary, incision and drainage	5	5			
Left popliteal, incision and drainage	1	1			
Perineal, incision and drainage	4	4			
Unclassified, incision and drainage	508	508			
Adenectomy, inguinal	272	272			
Aneurism, arterio-venous, ligation of common carotid and internal jugular	2		1	1	
Angioma, removed	1	1			
Bear bites, multiple (64), cauterization and drainage	1	1			
Bullet, jaw, removed	1	1			
Bursa, excision	2	2			
Cellulitis:					
Hand, multiple incisions	6	6			
Extending over scrotum, inguinal and abdominal regions, incision and drainage	1		1		
Foot, incision and drainage	3	2	1		
Unclassified, incision and drainage	25	25			
Chondroma, thigh, excision	1		1		
Cyst:					
Bronchial, removed	1	1			
Unclassified, removed	63	63			
Foreign body removed	2	2			
Furunculis, incision	63	63			
Gunshot wound, leg, bullet removed	1	1			
Ingrowing nail, operation for	44	44			
Ligation:					
Brachial artery	1	1			
Popliteal artery	1		1		
Lipoma:					
Axillary, excision	1	1			
Forearm, excision	2	2			
Leg, excision	1	1			
Unclassified, excision	2	2			
Lumbar puncture	20				
Lymphadenoma removed	10	10			
Neurorraphy, ulnar	1			1	
Nevus, extirpation	1	1			
Phlegmonous inflammation, leg, multiple incisions and drainage	1	1			
Sarcoma, thigh, excised	1	1			
Skin grafting	4				
Scars excised	5	4	1		
Tenorrhaphy	1		1		
Varicose veins, leg, ligation and excision	28	28			
ANAESTHESIA.					
Ether	590				
Chloroform	200				
Chloroform and ether	85				
Ether and nitrous oxide	9				

CRUISING SHIPS.

The health of the force afloat for the year 1908 has on the whole been very good and the returns show a gratifying improvement even over the satisfactory report for the year 1907.

This record is to be regarded as a triumph of preventive medicine and sanitary science, and as such would seem to be in part a direct consequence of the greater proportion of time spent at sea. It is the more gratifying also for practical reasons, as there has been a greater activity of all ships, particularly the Atlantic Fleet. From the standpoint of endurance and hard work, the past year was a most unusual one. The service has been of such a character as to try every possible test that a modern battle ship could be subjected to except actual engagment in battle. Climatic changes have been frequent and marked; all kinds of weather have been encountered; ports in all parts of the world have been visited, where entertainments have interfered with proper rest and dietetic routine; liberty has been freely granted and men have been exposed to practically all the diseases of mankind; the whole naval force has worked almost incessantly at routine duties, coaling ship, various drills, and target practice; speed trials have been held, and the engineers' branch particularly has been hard worked and frequently overtaxed, when and wherever a shortage of men existed; in fact those who have survived the year's experience without the exhibition of any physical disqualification for the service may well be regarded as among the fittest. During the early part of the year there was a great deal of sickness, probably due to the large number of green men who were enlisted in anticipation of the circumnavigating cruise and quickly distributed in large numbers to the several ships before they had opportunity to adjust themselves to the new life. Indeed, it has been noticed that whenever a draft of new men is received aboard a ship the sick list at once increases, but as soon as these same men have adapted themselves to their surroundings and become hardened to the requirements of the service the morbidity rate gradually assumes its normal proportion, providing the ship is operating under reasonably average conditions. In this connection it has been strongly urged, on good grounds, that the minimum age limit for recruits should be raised. While it must be admitted that after two or three years of active service those who escape medical survey as "unfit for service" will have developed from frail youths to hardy manhood, yet at the time of enlistment most recruits are so young that they are unable to properly care for themselves.

Surg. T. W. Richards says:

> Our recruits bring to the service the zeal, activity, and mental alertness inherent in youth; but it is also true that they lack the hardiness of maturity. Selected in most cases from the interior of the country when little over 17 years of age, they are immediately thrust into an environment to which they are totally unaccustomed. While the new conditions under which they are now to live are by no means unfavorable, but on the whole probably far more conducive to health than their previous surroundings on shore, this radical change comes at the critical time of rapid physical development. A serious period of physical and mental adjustment to the new order of things is now inevitable; to many this is a stimulus to which they promptly respond, but with others there is no reaction; there is apt to be mental listlessness, while physical defects and constitutional weakness, hitherto latent, are prone to manifest themselves.
>
> Moreover, at such an unresisting age they are not only subject to all the diseases of dults, but are predisposed to the diseases of children as well. It is believed by

close observers of the problems of the day as regards the personnel of the navy that an increase in the age requirement for enlistment would do more to reduce the morbidity from general infectious diseases, particularly measles, German measles, mumps, scarlatina, chickenpox, diphtheria, etc., and possibly tuberculosis, than any sanitary measures in operation or in prospect. Doubtless the lessened susceptibility would be apparent in other classes of diseases, while the cases of insanity and minor psychoses, so characteristic of adolescence, would in all probability show a marked decrease.

The immaturity of the naval force, as compared with most naval and miliary organizations, is a matter which deserves serious consideration.

Tropical service is another argument for the above contention, though it constitutes a problem in itself which has been touched upon in previous reports. Unsupported opinion is not the basis of the statement, which is continually repeated by different officers attached to ships serving in the Tropics, that it is a mistaken policy to keep ships so much in warm climates and that if the efficiency of the personnel is to be maintained the practice must be changed. There are very tangible signs that this is the case and medical officers have learned to expect, after prolonged duty in the Tropics, especially when continued with the restrictions and other factors of physical and mental monotony incident to ship life in those latitudes, that the health and vigor of the personnel, especially that part composed of those who have had two or three years of such service, will materially deteriorate. Among the evidences of this is a lessened resistance to infection in general. The men seem unable to throw off even the simplest infections, which in cooler climates would hardly affect them. Boils and abscesses seem more frequent and run longer courses before recovery is effected; infection of slight abrasions results in cellulitis which extends with great rapidity; neurasthenia becomes prevalent and other nervous and mental disturbances appear; and anemia and digestive disorders develop. All are usually of a low-grade character and the large majority of cases can be traced to no other cause than the insidious exhaustion of physical vitality. These conditions are not limited to the weaklings, nor does it take the practical observations of a medical man to discover the changes. It is important here to lay emphasis upon the combined circumstances of ship life and tropical climate; prolonged service on shore does not seem to be attended with such early untoward consequences. There are a number of aspects from which this subject of tropical service should be viewed, such as the military and the social; the above is the medical aspect and is perhaps the only one that need be given lengthy consideration in this report, though the military phase bears upon physical efficiency and the social phase involves principles of mental and moral hygiene, both of which are concerns of the medical department. The subject was discussed from those standpoints in the report of 1907 and the department's attention is invited to this broad question with recommendations that some remedial action be taken. It would seem that great improvement would be accomplished if the small gunboats on detached special service in tropical waters could be more frequently and regularly relieved and ordered north to some good port where liberty would be properly recreative and the beneficial stimulus of invigorating climate may be enjoyed preparatory to a resumption of duty as the relief of another ship.

The cruise of the Atlantic Fleet has been spoken of as a triumph, and this record involves the preservation of the health of the personnel no less than the system of adequate supplies, the regular delivery of coal, the care of the machinery, and the other elements entering into the maintenance of general efficiency, whether administrative or otherwise.

The general health of this fleet was from a comparative standpoint excellent and the cruise around the world was distinguished by a progressive decrease in the usual endemic diseases and subsequent freedom from epidemic invasion. Several factors operated to effect and maintain the satisfactory state of health which prevailed. First and foremost among these, Surg. L. W. Curtis says, was the complete freedom from the baneful influences to which ships and crews are subjected during prolonged periods spent at navy-yards; second, careful restriction and preventive measures for safeguarding the health at infected ports; third, the presence, part of the time, of the hospital ship *Relief*, which offered the fleet a ready means of ridding itself of diseased elements of the personnel, thereby diminishing the spread of morbific influences; and, fourth, a factor which doubtless had a psychic influence in preserving health, viz, the general character of the cruise, which is reported to have been exceptionally interesting and novel. There can be no question that freedom from monotony has a favorable bearing upon the general health of ships' companies, and this fact has been recorded in our own and other navies in time of war.

The cruise only lacked the stress of actual warfare as an efficiency test of character, quality, and endurance of personnel as well as material. The results in relation to the general health and physical stamina of the personnel were shown in a tabulated statement of morbidity statistics for 1908 as compared with 1907, which former year should represent the normal requirement, though the latter really represented the usual. The statement referred to embraces 13 of the most prevalent diseases which may be said to be endemic in the fleet, and it appears that in 1908 the returns show a great reduction.

The general health of the Pacific Fleet was excellent, and this division of the force afloat, though the cruising was somewhat irregular, was also very active during the year, to the seeming benefit of the personnel, in spite of the sudden changes of climate and the various disease influences of the many ports visited to which they were exposed. The same factors which were observed to foster a satisfactory state of health in the Atlantic Fleet were influential to the same end in this fleet, and every care was exercised to take the fullest advantage of them and to protect the fleet from disease invasions. A number of mild epidemics did develop at various times, starting as a rule from drafts of new men, as hitherto mentioned, and on one occasion, at Magdalena Bay, a camp was established on shore for their management, as reported under "Infectious and contagious diseases." The largest number of admissions was for diseases of the general infectious class. The vessels of the first and second division, including the torpedo fleet and auxiliaries, were at the navy-yard, Mare Island, Cal., when the epidemic of smallpox occurred at Vallejo, but the prompt precautionary measures instituted with respect to the fleet were attended with more than usual success in so large a body of men and no case developed among the crews of the ships.

It was in the third squadron of this fleet, operating as an independent force in Asiatic waters, that the measure of prophylaxis received that careful consideration and study which, through the active interest of the commander in chief, Rear-Admiral G. B. Harber, and his representations, gave a new impetus to the bureau's repeated recommendation that some steps should be taken to enforce measures by means of which venereal diseases may be reduced, and resulted in the department's approval of the promulgation of full information on this subject. This class of diseases is far and away the greatest curse to the navy, being responsible for the greatest number of sick days and damage to the service in unfit men, especially on that station, and in seriously concerning himself with the question he has in a most important direction strongly seconded the Medical Department's efforts in behalf of health conditions and shown himself in this and other ways kindly alive to the fact that physical and mental well-being are perhaps the most pressing consideration in securing a thoroughly efficient personnel.

The commander in chief of the first and second divisions of this fleet has also shown a similar recognition of the importance of the various functions of the medical department, and, among other matters, took action looking to the unification of medical department organization for battle on the ships under his command along lines which the bureau has advocated.

Infectious and contagious diseases.—This subject is considered at some length in the section "Special diseases," but it seems appropriate to here state the fact that almost every ship in the service at various times during the year has harbored a greater or less number of cases of one or more of this class of diseases. Only about 13 ships, embracing for the most part the smaller ones on detached service or those in ordinary, were exempt, and, on the other hand, many epidemics occurred. The list of the most important diseases contributing to this record includes scabies, influenza, diphtheria, cerebro-spinal fever, mumps, scarlatina, typhoid fever, pneumonia, and measles; and it is interesting to note that a great deal of the infection is traceable to receiving ships and training stations where the various diseases prevailed. Almost every ship reporting such cases specifically attributes the origin of one or more of the diseases on board to drafts of men received from one or another rendezvous, the disease first appearing among the members of the drafts.

Table showing ships which had infectious and contagious disease on board during 1908 and the character and number of such.

	Scabies.	Catarrhus epidemicus.	Diphtheria.	Febris cerebrospinalis.	Febris typhoides.	Febris pneumonica.	Morbilli.	Parotiditis epidemica.	Scarlatina.
Alabama					1	1	6		
Albany	2					1	2	11	
Annapolis		1				1			
Arethusa	2							2	
Arkansas					2				
Buffalo		18			1	2	5	27	
Birmingham	7	9				3			
California	8	17			1	4	12	47	
Castine		3							
Celtic					1				
Charleston	13	80		1	1	1		38	
Chattanooga					2				
Chester	1	4						1	
Chicago	4	2			1			2	
Cleveland	1							2	
Colorado	7	22			1	4		26	
Concord		17			2				
Connecticut	16	26				2	3	3	
Culgoa		7						1	
Denver					1			2	
Des Moines	24	4			2		4	3	1
Dolphin		5			1		4	11	
Dubuque		5	1						
Fish Hawk							3		
Galveston		4						2	
Georgia	1	2		1		5			
Helena	1					3		2	
Hist		5				1			
Idaho	2				2	1	2		
Illinois		8			1				
Iowa		3				1	6	12	
Kansas		26	1	1	4	3		26	
Kearsarge							1		
Kentucky		44				1		6	
Louisiana						3	1		1
Maine		44			6	2		1	
Marietta									
Maryland		64				3	1	17	
Mayflower	2	1				1		2	
Milwaukee	1	1					7	13	
Minnesota	4				3	1			
Mississippi	3	6			4	11	1	40	
Missouri	2	3	2					1	
Montana	3	5	2		6	1	1	5	
Montgomery		1					1	1	
Nebraska	14	33	21			5	25	18	12
New Jersey		16					1	1	
New Hampshire		1			1	2		2	
Nevada	1	2							
North Carolina	2	3						11	
Panther		3				2		9	
Pennsylvania	1	81			2	3		14	
Prairie		3				1		10	
Puritan		2							
Rainbow	1	1						2	
Ranger		1							
Rhode Island	16	2			2			10	
Salem	3					1			
Scorpion		5							
Solace	2								
St. Louis	1	7			1	1	10	28	
South Dakota	1	109	2	1	1	6	12	8	
Tacoma		7							
Tennessee	4	45			1			4	
First Torpedo Flotilla							1		
Third Torpedo Flotilla		2							1
Vermont	5	12			3		2	5	
Washington	6		1		1				
West Virginia	3	61		1		6	18	19	1
Wilmington		4				1			
Virginia		18			1	3		2	
Wisconsin	3				1	8		18	
Wolverine	1	13			1				
Yankee		2							
Yorktown		2					1	5	

In several instances it was necessary for ships to proceed to some quarantine station for disinfection. In the majority of instances, however, the diseases have been eradicated by the medical department of ships without going to quarantine station.

The most notable instances of epidemics on cruising ships were the occurrence of diphtheria and scarlatina on the *Nebraska* and grippe and mumps on the *Charleston*, *Pennsylvania*, *Kentucky*, *California*, and *West Virginia*. The first of these was mentioned in the report for 1908 under "Hospital ships." The latter offered occasion for an interesting experience in the isolation of cases in camp on shore. Medical Inspector Byrnes reports that owing to the rapid spread of mumps among the crews of several of the ships of the Pacific Fleet when in Magdalena Bay during the fall of 1908 it was deemed advisable to organize a detention camp on shore and accordingly, after the necessary permission had been obtained, a suitable site was selected and the camp established November 5, 1908. The camp routine was formulated by Assistant Surgeon Raison and was, with the exception of a few minor changes, observed until November 29, when the camp was discontinued.

Four medical officers (assistant surgeons) were detailed for duty at the camp at different periods during its existence, and the work was so divided that each one had an opportunity for experience in field duty. In all, 44 patients were so cared for, 21 tents being required for their accommodation, and the advantages of the camp in benefiting the sick, relieving the ships, and stamping out the epidemic were striking. The reports of the four officers detailed for this duty are interesting. Unfortunately a fresh source of contagion was present in a new draft of men received late in November.

Relative to mumps, Surg. E. G. Parker says:

> The question of the source of transmission of the disease is probably definitely settled as due chiefly to mouth secretions. The many precautions taken aboard the *California* with mess gear, spit kits, etc., and the scuttle butt being now of such type that it is not an element, one must look for a further mode of transmission. It is believed that the cigarette tobacco bag may play an important part. It is the invariable habit of those who use this tobacco to close the sack, after taking out sufficient tobacco for a cigarette, by pulling on the pucker string with the teeth. Thus each user of the sack as it is passed from one to another takes the saliva-soaked pucker string in his mouth, very likely infecting himself with the mumps.

Provision for the sick and injured on board ships have undergone striking changes for the better in the last eight or ten years. This improvement in conformity with the demands of the times was in progress before the Spanish-American war, but barely more than a beginning had been accomplished when the prospect of that event put a stop to anything but hurried emergency preparations to care for a possible large number of victims of inevitable naval action. When affairs had quieted down after that war the work of developing the equipment of the Medical Department at sea was gradually resumed, and during the past eight years no effort or proper expenses have been spared to reach the present high standard of facilities for the care of sick and injured afloat. It has been the ambition of the present chief of bureau that no reasonable provision in the light of most advanced knowledge should be lacking. The change from the early condition, when the provisions were primitive and consisted of the barest necessities in accommodations and supplies, may be said to be complete. To-day the sick quarters of each battle ship represents facilities comparable with a small, splendidly equipped emergency hospital in every detail, and there are few in civil practice who have anything like as fine an outfit as that furnished naval medical officers for this work aboard ship. The smaller ships, protected cruisers and gunboats, etc., have been equally well provided, though on a reduced scale, for the care of the sick and injured. Reports from the various naval medical officers attached to ships of the Atlantic Fleet and from many other sources all attest the thoroughness with which the various accessories to the sick spaces have demonstrated their great value, in fact, indispensability, particularly the operating room and isolation ward. In the former, numerous imperative major operations and minor operations of varying degree of gravity have been performed on almost every ship during the year, with results that would have been impossible in former days, owing to the then unattainable surgical cleanliness, which relies more upon asepsis than antisepsis. In the latter, on the different ships, many contagious diseases have been treated, and by this means not only has the personnel been protected from the danger of extensive epidemics, but the ships as units have been saved the disabling inconvenience of quarantine. The utility of the isolation wards was in this latter respect forcibly demonstrated by similar experiences of the *Kearsarge*, *Vermont*, and *Georgia*.

During the last stages of the cruise of the Atlantic Fleet after the *Relief* had been detached, all three ships developed cases of smallpox, and if it had not been for the complete segregation which was made possible by this facility the ships would have been quarantined with all the consequent inconveniences, as it was some time in each instance before arrangements could be effected for the transfer of the patients to shore hospitals in foreign countries. As a matter of fact the responsibilities of the health officers were so lightened by the perfect medical arrangements obtaining on board and the care which each medical officer exercised in the interest of the ship's crew, and the protective measures adopted in each instance were so satisfactory that little or no opposition was encountered in making the disposition above mentioned.

The provisions for the care of the sick are reported as generally efficient, though a few minor criticisms with suggestive improvements are received from practically every ship, and from a number there is complaint of the location of the sick quarters, of the noise incident thereto, and of the space allowed, which on some ships has been curtailed or rearranged from the original plans. The *Idaho* is among those so treated, and undoubtedly if she offers a fair example of the result there is good reason to believe that a mistake has been made. The decided opinion is held by medical officers in general that even with the prospect of hospital ships the space at present allotted should by no means be cut down. Hospital ships could not always be at hand, and the quarters now available are by no means more than sufficient, if due consideration is to be given to the comfort of the sick and their special requirements in air and space. In considering sufficiency in extent of sick quarters the question is not settled by a mere reference to the number of bunks as compared with the average number of sick. Emergencies are imminent at all times, and overcrowding the sick is an evil not tolerable from a hygienic or humanitarian point of view. It is a state of affairs which retards recovery in all cases, and defeats treatment altogether in some, so that it can not be justified beyond that absolutely imposed by unforeseen conditions incident to the service.

There are certain features which might be added to the medical provisions on board ship and which would materially aid the work of the medical officers. The most necessary of these is a compartment for the treatment of venereal diseases and for carrying on venereal prophylactic routine. The bureau observed a consistency with the department's attitude of opposition to this latter procedure in disapproving requests for the fitting of such a compartment, but now that the venereal prophylaxis is giving promise of so much benefit and the department has indorsed the procedure and authorized the promulgation of full information and instructions it seems important, not only in the interest of best results, but for the sake of decency, that the measures should be assisted, as far as possible, by providing special rooms for the purpose. It is therefore recommended that this be done in the future and that ships now in commission or laid up at yards be provided with such a compartment as opportunity occurs.

Some sanitary consideration of ships.—There are various minor defects in construction and equipment from a sanitary point of view which are perhaps peculiar to different ships, such as lavatory accommodations, unsatisfactory flushing systems, insufficient ventilation or its entire absence in special localities, inadequate refrigeration, etc. These need no more than mere mention in this report, as recommendations of a sanitary nature in the reports from ships when received are extracted and referred to the bureau concerned. But there are certain other defects which are more or less common to all ships with few exceptions.

The question of proper illumination by day and night was discussed at length in the report for 1907, and soon after that an important article on the subject by Medical Inspector J. D. Gatewood was published in the Naval Medical Bulletin. The Bureau of Construction and Repair is doing perhaps all possible to provide means for better natural light, and it is understood that the Bureau of Equipment is taking steps to improve the provisions for artificial light along rational and scientific lines, so that there is hope for reformation in this direction, so important to the eyes of the naval force, to the utmost practicable extent.

Reports received from officers attached to the ships of the Atlantic and Pacific fleets indicate, as a result of the experience gained by the long cruises, that in general the system of ventilation on board ships is satisfactory, the berth and protective decks, holds, storerooms, and living spaces as a rule having a good supply of fresh air. There are, however, no provisions for artificial ventilation on the gun deck, except in the crew's heads and officers' water-closets. During smooth or moderate weather, when gun ports can be kept open, the ventilation is good; but in heavy weather, when these ports must be closed, the air becomes distinctly vitiated in a short time. As a great many of the men sleep and spend their leisure time on this deck and as its various compartments would be tightly closed in event of naval action, it seems desirable, if not actually necessary, that provision for artificial ventilation of this deck be installed. This branch of the ventilating system would not have to be used continually, but only when circumstances demanded it. But of all parts of the ships reported insufficiently ventilated, strange to say, the forward third, including the sick spaces, is the worst. The branch of the ventilating system for this part of most ships takes its supply of air through cowls situated on the forecastle, so that in heavy weather, when these must be unshipped, the compartments depending upon this source of supply are certainly deprived of ventilation and quickly become uninhabitable, which, with respect to the sick, is a serious matter. Manifestly, there is much still to be accomplished on ships of the navy with respect to ventilation.

"Not only well-defined diseases, but also vague states of ill-health, are certainly due to poisonous exhalation from human lungs," from direct respiratory infections to the more remote nervous disorders, and, on the other hand, pure air is a most potent prophylactic aid and therapeutic agent. Fresh air is an essential in phthisiotheraphy; typhoid mortality is reduced to a minimum when patients are given the greatest abundance of fresh air; astonishing results are being obtained in the treatment of pneumonia in the open air, etc., and even excellent results follow the management of acute insanity under similar conditions.

It is urgently recommended that all fresh air intakes of ships, particularly those upon which the forward sections and sick spaces depend, be placed in the superstructure as high up as possible, preferably near the conning tower or in the military masts, so that ventilation may not be interrupted on account of bad weather. This may be a difficult problem, but it is of sufficiently serious moment to deserve the earnest attention of naval architects. The board appointed to investigate the ventilation of the *Montana* and *North Carolina* reported on this phase of the question, and the defect has already been corrected on some ships, notably the *New Hampshire*, with most gratifying results. On this latter ship, also, the bureau's recommendation for both exhaust and supply in isolation wards and toilet closets has been carried out, and as a consequence the air of these compartments is almost constantly free from unpleasant odor.

In regard to the combined warming or cooling and cleaning of ventilation air on battle ships, the bureau feels that the system which has recently been suggested represents the possibility of a great advance in sanitary science as concerned particularly with naval hygiene. The combined heating and ventilating system as tested on the U. S. S. *Vermont*, and favorably indorsed, was one step in the interest of health on board ships. The device for washing the air before it is distributed by the delivery tubes, which has been suggested, seems to have several additional advantages to this same purport, not the least among the claims for which is the exclusion of dust and other impurities of tangible character, such as disease organisms from the blower system. It is well known that foreign matter does accumulate in the air ducts of any system of ship's ventilation, and when once there can never be dislodged short of partial dismemberment of the system, or otherwise at great trouble and expense, so that any measure which promises to eliminate this problem in ship's sanitation is worthy of some investigation. It may be that there would result an excessive humidity of the air supplied, which would make the system undesirable for adoption to the navy, but this point seems settled to the contrary, as the temperature of the air is reduced to such an extent that its power to hold water is greatly reduced.

The fact that the air washers not only offer a means of cooling the air, but are credited with the ability to eliminate dirt and bacteria, should make them peculiarly of utility in complying with the reported need of some system of forced ventilation in cold-storage rooms to prevent molding and spoiling of fresh provisions, which in the aggregate amounts to a large financial loss to the Government and also exposes the personnel of the service to accident of poisoning by tainted meat or other saprophytic infections of various kinds. This consideration also suggests the advisability of dividing the refrigerating power with which ships are provided whenever available space will admit. If the allowed refrigerating capacity is estimated at two or more tons, this it would seem should be divided between two ice machines, so that when one is for any reason disabled the provisions will not be subjected to the liability of putrefaction, with all the regrettable consequences, especially in the Tropics, where this change takes place very rapidly.

The drainage on some of our ships is another matter which requires remedial action. The system should be efficient without the need of constant sanitary inspection and attention, but unfortunately this is not the case in some particulars if the reports of officers are to be credited. For example, it has been repeatedly brought to the bureau's notice that the drains in the engineer's wash room and other lavatory accommodations are, on a number of ships, improperly placed, resulting in the accumulation of water on the decks and an unhealthful humidity of the atmosphere of the compartments. Moreover, as directly concerns the work of the Medical Department, the operating room, where delicate surgical treatment is carried on, should be free from any possible source of infection such as represented by sewage drains from the ships' heads, which in a number of instances to-day pass through the operating room, and it should be the aim of the architect as far as possible, for obvious reasons, to lead all such drains outside of this compartment or so place them that compliance with the requirement may be simple.

The water storage and water supply is another important matter relative to ships which has been the subject of comment under "Navy-yards and stations * * *." In this connection Surg. E. G. Parker reports a condition which was evidently not eliminated by the distilling plant and which, while resulting in no untoward consequences, indicates the need of watchfulness. It seems that when the U. S. S. *California* was lying off Coronado, Cal., early in July, 1908, the drinking water became unpotable owing to a strong phosphorus-like taste and smell which appeared suddenly. It was noticed that the waters of the bay had been very markedly phosphorescent a few days previously; that the phosphorescence had suddenly disappeared, and at the same time the waters of the bay became streaked a muddy red color. Also there was an offensively strong odor of phosphorus suggestive of decaying matter in the neighborhood of these streaks. This odor was precisely the one found in the drinking water and was responsible for its offensive taste. This same phenomena had been observed several times before in the waters off San Diego and always at about the same time of the year. It has been attributed to the death of large numbers of phosphorus-bearing marine organisms. It was only after the ship had left that vicinity and all tanks were cleaned out that the water again became fit for drinking purposes.

It is not possible to be too solicitous about the cleanliness of tanks for storing water aboard ships. With their usual construction they can only be cleaned by hand and, as the man who goes directly into them, and his clothes, can only be made approximately clean, there results the introduction of more or less organic dirt which can not be entirely removed. It would seem wise, therefore, to fit a drain pipe controlled by a valve at the lowest angle of all tanks so that they may be thoroughly rinsed after manual cleaning and disinfection, if need be.

While the water supply is, as a rule, excellent, the average allowance per man is not considered sufficient for hygienic purposes. This subject will be discussed elsewhere; suffice it to say here that the enlisted personnel needs better facilities for keeping their bodies and clothes clean as a sine qua non in the maintenance of clean ships and healthy crews. The bureau is of the opinion that much of the catarrhal trouble and a large per cent of the skin diseases would disappear if a more generous supply of fresh water for laundry and toilet purposes could be allowed.

At present, with the possibility of one or two exceptions in which large sterilizers have been improvised on board, there are no efficient facilities for disinfecting quantities of clothes or bedding on battle ships. In view of the many epidemics of infectious and contagious diseases which have developed on cruising ships in the past and the constant liability of occurrence upon the importation of an infection by new drafts of men, it would seem that some provision for the disinfection of clothes and bedding other than the makeshift, such as an imperfectly sealed casemate and a dangerous formaldehyde lamp, which is alone available to-day, should be installed. Surg. E. M. Shipp interested himself in the subject when on the *Illinois*, and Medical Inspector Gatewood, in connection with his book on naval hygiene, has been working on plans for a large sterilizer for this purpose, which it is hoped will prove satisfactory for installation on board ships of the navy.

The menace of the community drinking cups is still present in some of the ships, and there should be no delay in supplanting it on all ships by the now recognized device invented by Surgeon Gates, which is based on the fountain principle. This is the only strictly sanitary contrivance that can be operated on board ship. The danger of transmitting disease by the cup must be prevented, but there is objection to the use of a drinking utensil kept immersed in medicinal solution, while on the other hand many who use it do not take the pains to reimmerse it. Even on ships where the Gates sanitary scuttle butt has been installed the fireroom force still have to use buckets of water taken into the firerooms, and the cups they use are not disinfected between drinks. Surg. E. G. Parker has suggested a substitute. He says:

> Portable scuttle butts of such dimensions and shape as would allow of their being carried from place to place and hung on hooks on the bulkheads in the fire and engine rooms where they are needed would be a vast improvement over the old style dirty drinking bucket system. These should be of galvanized iron and covered with a layer of asbestos, that the water may be kept fairly cool. A fountain nozzle attachment should be made to obviate the use of drinking cups. I would suggest that the dimensions of this portable scuttle butt be, for example, 18 inches high, 18 inches long by 8 inches through. This, then, would hug the bulkhead closely, would not be in the way, could be taken to the scuttle butt and filled, and would be a vast sanitary improvement over the present open-bucket system.

In the report for 1908 the bureau took occasion to refer to shellac in connection with linoleum as having a very definite bearing upon sanitary or unwholesome conditions of the ships' decks, according as the one was freely or sparingly used and the other out of or in repair. Undoubtedly these two materials are very important as dressings, either one or the other or both together, for those lower decks which are daily washed down and which can not be exposed to sunlight and fresh air. It is in these protected places that men congregate in inclement weather and at other times to write, read, and play games, etc.; and if the decks are not kept well covered by some impenetrable finish they never become thoroughly dry. It has been again observed and reported by a number of officers that the dampness from this source was responsible for a large percentage of colds, tonsilitis, and bronchitis, and that when the decks in question are kept well shellacked these allied conditions practically disappear. It is believed that a liberal supply should be allowed all ships.

Some hygienic considerations of ship life.—The science of right living under all conditions of human existence, whether ashore or afloat, has reached such a stage of development along rational lines and the principles of preventive science have been so broadly disseminated that it seems as though the time had come for the evolution of a "health conscience." The general popular familiarity with the nature of communicable diseases, the better understanding of the meaning and purposes of prophylactic measures, and the greater intelligence with which people, individually and collectively, are ordering their lives and caring for their surroundings—all these are hopeful signs of a growing realization that many human ills are unnecessary, and that by observing precaution against them the benefit is both personal and communal. One common cause against avoidable disease is the basis for a species of socialistic movement, and in order that each may play his part in the campaign the educational propaganda must go forward. Medical officers throughout the service are taking opportunity to interest their shipmates in the rudiments of various matters of general and personal hygiene, and the bureau is taking part in the work by issuing simply phrased circulars of information on certain important subjects. But more explicit and detailed information is needed to enlist the cooperation of all influential authorities in forwarding measures looking to the control or extermination of disease influences, and the discernment of this fact has led the bureau to enter somewhat fully upon a discussion of various problems in its reports for the past few years.

Perhaps enough has been said in this and previous reports relative to exercise and recreation. Reports from naval medical officers attached to ships, particularly from Surg. W. M. Garton, on the U. S. S. *Ohio*, contain some interesting statistics concerning the average weight, height, chest measurement, etc., of members of the enlisted force, accumulated through a period of several months, to show improvement or deterioration, and classified according to divisions. There is unfortunately not sufficient data upon which to base a comparative estimation as to which of the various branches of ships' crews make the best showing in physical condition, but there is unanimity of professional opinion, expressed emphatically in some of the reports, that the enlisted men of the navy in general are not afforded, or at least do not take, the opportunity for the physical exercise necessary in the maintenance of robust health on board ship.

Quite as important as drills and exercise is the question of liberty of an attractive beneficial sort. The promotion of contentment among crews of ships may or may not be accorded its due significance as a factor vitally concerned in the success of the aim for highest efficiency, and it ought to be possible for the authorities to select ports where the privilege of liberty can be allowed in more adequate proportion without courting the risk of introducing an epidemic among the personnel of the command and where there is some sufficient decent interest or diversion to attract the men when they go ashore. As has already been indicated, the employment of ships at stations in tropical latitudes is the particular feature of the service which makes these remarks pertinent, and the department would do well to give such consideration to the matter as would be conducive to the best interests of the navy, by reducing the restrictions and consequent deterioration—physical, mental, and in some cases professional—incident to prolonged tours of duty in the Tropics.

Napoleon said: "The most important quality of a soldier is his ability to support fatigue and privation; physical courage is only second." This aphorism is equally applicable to the man-of-war's man, and the realization of the standard of health and endurance thus expressed entails strict conformity to habits of personal hygiene. This broad subject embraces numerous questions, but, as has been the practice of the bureau in the past, only those phases which have become prominent during the year and seem to deserve comment beyond that already made in previous years will be taken up in this report. Nutritious diet, proper clothing, a proper apportionment of work and rest, avoidance of excesses, the activity of body processes and the sanitary condition of surroundings, etc., all are extremely important, but the maintenance of personal cleanliness, including the external body and orifices is, if possible, more necessary among the crews of ships because so many live together within a small space. Bodily cleanliness of the members of ships' crews is a problem which in the past, by reason of the excellent character of enlisted men, on the whole, and the more or less adequate facilities for bathing, worked itself out fairly well. To-day the increased size of crews and the widely different character of the duties of the various branches, with the constant inflow of raw recruits, has, to a large extent, disturbed the old-time homogeneity of the naval force and placed difficulties in the way of enforcing compliance with the requirements in this direction. The plan of making periodic venereal inspection of the crews of ships as a means of improving the bodily cleanliness and ascertaining the existence of disease is no longer practicable, nor, as advanced by some officers, is it considered a good one. Enlisted men in the main are a clean and self-respecting class, to whom an inspection of this kind is extremely offensive and humiliating, and, besides being unnecessary from the bureau's point of view, would come to constitute a not inconsiderable factor in keeping good men out of the service or deterring them from reenlisting. Yet there are many individual cases which need attention. It would seem, therefore, that a scheme of selection is by all means the best and should be inaugurated. Division officers are in closest touch with the several groups of men, and they are in the position of advantage to know and the most logical ones to designate the men who need inspection. The bureau would advise that all division officers make weekly reports to the executive officer of those men whose habits with regard to personal cleanliness indicate neglect in one way or another, or who exhibit the possibilities of physical or mental conditions detrimental to his personal good or that of his shipmates. Ideas have changed with respect to the methods of accomplishing improvement in the condition of life. In years gone by solicitation for the common good led to an oversight of the individual, and the various problems were attacked as a whole. In this age the requirements of the common good are being more rationally and securely attained through the individual by attention first to his peculiar needs, and, though broad movements as such are not being neglected, the revolution in the mode of attack is effecting sounder and more lasting results. The plan above suggested would seem to embody the most wholesome features which the situation on board ship demands and will allow, in that it will put a premium upon cleanliness by exempting clean men from a distasteful inspection and sharply marking the man of unclean habits.

Venereal prophylaxis.—The navy represents a broad field for work in the now almost universal campaign against the social evil, and the service is to-day taking advantage of the high class of the personnel to the end that better moral conditions may prevail. While in this movement the medical department is allying itself with the medical men and sociologists of this and other countries, it must be remembered, as pointed out in the bureau's report for 1907, that the improvement in the naval service in respect to venereal diseases will take place as, and no more rapidly than, similar improvement is effected in civil communities, except so far as the disciplinary feature of a military organization gives opportunity for better control. In their instructive talks on hygiene which medical officers give to the men of the service the subject of venereal prophylaxis is properly included. The idea is not to equip them with the means to make illicit intercourse safe and justifiable, but, on the contrary, to point out the dangers of the practice, which no measure can entirely prevent, and to employ the uncertain devices offered to safeguard the individual against disease when he has run the risk of exposure, thus indirectly lessening the spread of venereal disease.

It is believed that the navy is playing its proper part, and that where ignorance exists and fallacy is entertained, the individual or individuals will be found to be recent recruits in the vast majority of instances. As stated above, much is being done, but effort in this direction should not be relaxed, and the question of ordering the life of men on broad hygienic principles bears directly upon the problem. In the meantime until a higher moral stability has evolved through untiring faithfulness to the educational propaganda, and until the civil communities from which recruits are drawn and in which the men seek recreation are thoroughly cleaned up and regulated beyond the seduction of visitors, something must be done in the nature of physical prophylaxis. The results of what has already been done are to be found under the section "Special diseases."

Broadly speaking, the moral question involved in such a proposition is a difficult and complex one, but in this respect military organizations present peculiar phases and differ materially from civil communities. Naval authorities can not afford to ignore the tendencies of human nature to the extent of neglecting this obligation to take due precaution that the disabilities of indiscretion and moral laxity may not become a great economic loss to the Government and, worse, a serious impairment of efficiency to meet those emergencies for which the navy exists.

In discussing the moral side of the question it must also be borne in mind that the man-of-war's man is peculiarly liable to temptation by being compelled, by the very nature of his vocation, to seek recreation and entertainment in cities and places to which he is a stranger. The traditional deep-rooted and unjust prejudice which the very public that is loudest in its cry for morality entertains against men in uniform is largely responsible for keeping them away from those places of entertainment which might be uplifting and compels them to seek the resorts where they are welcome. This fact has long been recognized by the department, and the remedy lies not alone in the change in uniform regulations, which tacitly extended to enlisted men the privilege of wearing civil dress when on authorized absence from their station in home ports, but in educating the public to its duty to those men in uniform who do not wish or who can not afford to have two sets of clothes.

Intimately associated with the above matter are three other practices—cigarette smoking, alcoholic indulgence, and the cocaine habit—all of which are inimical to health. The first two of these have been given consideration on previous occasions. The latter, by virtue of its growing prevalence, is deserving of attention. Reports from several officers discuss the subject and articles have been published by the lay and professional press. The subject of cocaine and its relation to the service is an important one, not only because of the influence of such a poisonous drug in preventing normal metabolic functions of the body, but because of the viciousness and insidiousness of the habit. When one considers the evils incident to the use of cocaine (or similar drugs), the establishment of laws regulating its sale is seen to be of utmost importance, but various States have failed to fulfill their obligation in this direction and the drug in question is easily obtained within their borders and other places which our ships frequent. It therefore devolves upon the navy to protect itself. Medical officers of the service must not shirk their part in the general movement against this terrible habit. Nothing of immediate practical use to the service can be accomplished by the advocacy of measures looking to the restriction of the sale of cocaine in civil communities. Little dependence can be placed upon aid from this source, as may be judged from the considerations to follow, and, even if this were not so, as far as the navy is concerned, at least, it would be tantamount to starting in the middle of the campaign. Education is the real beginning, and this is where the duty of the medical officer lies. The young men of the service, by reason of the very nature of their calling, with the frequent change of station and separation from the ties and wholesome restraints of domestic life which it imposes, are peculiarly exposed to the temptation of association with the immoral world. It has been asserted very generally that young men seem to be the readiest victims to the habit. This idea has gained ground probably because they naturally come under close observation and scrutiny. Yet there is much truth in the statement, and the question consequently arises or shall arise: "Where do the young men, and even boys, acquire the habit?" Looking carefully into the facts a sufficient answer is found in the dark corners among the random dissolute women and prostitutes in disreputable houses. The peculiar effects of cocaine particularly commend its use to these women in their traffic, and that they are inveterate users of the drug is well established. To ignore the fact that the young men of the service frequent such places or are lured into them can serve no useful purpose, and will do absolute harm. It is a noteworthy fact to be borne in mind in this connection that these women and their habitual associates take a strange delight in adding another victim to this feature of their misery, and the eyes of the enlisted men must be opened to the dangers that beset them in this direction. The moral phase of the problem is within the proper scope of the sociologist, but the safeguarding of the health of the naval personnel is in the hands of the medical department, and well-chosen words of warning relative to the above matter should form a part of the regular instruction in hygiene.

The navy ration was reported from almost all sources to have been on the whole excellent not only in the manner of its preparation, but in its quantity and nutritive quality. The few complaints that have been mentioned were in the main trivial. As a matter of fact, the nutritive value of the ration has been shown to be in excess of established standards, though this is probably desirable for various administrative reasons. There was but one instance of ptomaine poisoning reported, and this was traceable to the eating of pork sausage which was not suspected of being tainted. The use of fresh milk as a part of the navy ration should, it is believed, be discontinued, owing to the doubt as to its source and the question of the honesty or care of persons supplying this article. The dehydrated vegetables, which the Bureau of Supplies and Accounts has been testing, seem to have proved very satisfactory to the enlisted personnel, and many claim that this is as good as if not better than the fresh article. Certainly there are decided reasons in favor of their use on board ship if they continue to be satisfactory, for, besides the advantage of greatly reduced bulk and waste, they do not deteriorate. It has been reported that on some of the ships hot coffee and sandwiches are served at regular times between meals to the men engaged in the work of coaling ship. This practice may seem of small value from a hygienic point of view, but it is just these little things which count to lessen discontent and keep up the physical tone.

The matter of clothing has received considerable attention in the reports of medical officers for the past year, and it may not be amiss to recount those recommendations which the bureau is inclined to indorse. As regards uniforms, it is believed by many that the character of the material with which they are made is in some instances not suitable to the climate for which they are intended. It is contended that a light khaki-colored drill, cut in the same style, could well be substituted for the white working suit. While the idea is approved in so far as it would afford that necessary protection from the ultraviolet rays of the tropical sun, which have been shown by Woodruff and others to be so detrimental to health, and would give a uniform of inconspicuous color for landing parties, the change has the objectionable feature that such clothes would not be as cool or as easily washed as the thinner white below mentioned. The contention that they would present a neat appearance for a longer time is but another way of saying that dirt would not be as easily discernible, and this is held to be distinctly disadvantageous when it is so often necessary to prompt men with lax habits in the matter of personal cleanliness. The really desirable change and that recommended is that the white working and white dress clothes be made of lighter weight material. As at present furnished they are too heavy, and their comparatively small sale is said to be due to this fact and the difficulty experienced in washing them.

The present white cap, while neat and light and satisfactory aboard ship and for summer use in northern latitudes, is very unsatisfactory as a protection (particularly to the back of the neck) in a tropical climate, and it would be hard to conceive of a more unsuitable headgear for the Tropics than the heavy, close-fitting, flat, blue cap. In the last named no ventilation is possible and the head becomes overheated, yet it has been prescribed to be worn by liberty men in hot weather and tropical countries in order, by virtue of the cap ribbon, that the wearer could be recognized as of one ship or another. Straw hats, as used in the British, German, and Japanese navies, on which the cap ribbon could be mounted for purposes of recognition if this is deemed necessary from a military point of view, should prove a valuable addition to the uniform outfit of enlisted men.

The cotton undershirts for tropical climates and the light drawers are too heavy and uncomfortable. The drawers in particular should be replaced by a knee-length article made of nainsook or some such material. Many men wear bathing trunks instead of the drawers now provided, but if the suggested change were made this undesirable practice would cease. The black cotton socks now furnished instead of the white article are also not as desirable for hygienic reasons, and the change has been said not to have met with the approval of the enlisted men. Pajamas should be among the small stores for sale to enlisted men, as it is most unhygienic, especially in the Tropics, for men to sleep in the underwear worn during the day, which has become soiled and impregnated with the excretion of the skin.

As for the uniform of the chief petty officers, it is believed that the white coat now prescribed for them is unsuitable, especially in the Tropics, because, as Surg. F. M. Furlong points out, in order to be strictly in uniform and look neat, a white shirt, stiff collar, and black necktie has also to be worn, which places this class of enlisted men at a disadvantage with commissioned and other officers in the matter of expense and comfort. A uniform coat which can be closed at the neck so that it can be worn over an undershirt in warm weather is therefore recommended for chief petty officers, and this idea can be the more readily adopted, since distinguishing shoulder marks are now prescribed for warrant officers.

Laundry.—It is remarkable in these modern days that no provision has been made for the washing of enlisted men's clothes. It is suggested, therefore, that consideration be given to the advisability and practicability of installing washing machines and centrifugal extractors on each large ship for the use of the crew. Two or three men could easily handle all the work of the machines, after which the clothes could be hung up to dry by the divisions concerned, as at present. The idea may seem somewhat radical, but it is believed by its adoption that valuable time could be saved, which could be employed to better purpose in other occupations; that less water would be used; that the slopping up of the decks would be obviated; that the use of out-of-the-way places for unauthorized washing would no longer have to be contended with; and that the contentment and health of the crew would be materially promoted. The striking difference in the cleanliness of the undergarments of men during warm and cold weather has frequently been observed and is perhaps not to be wondered at when one considers the exposure to which enlisted men are subjected when scrubbing their clothes in cold water under the present primitive system. This exposure is of course dangerous to health, but uncleanliness, on the other hand, is a violation of hygienic requirements and both of these undesirable alternatives may be avoided in the manner suggested. Moreover, the demand for a larger amount of fresh water per capita, which was mentioned in a preceding section of this report, would also thus be largely solved. There can be no question that it is hygienically wrong under the conditions characterizing ship life for men to wear cloths which have been washed in salt water and which in the drying are left pregnant with a deliquescent salt, yet to undertake and supply each of 800 or 1,000 men on the large ships with a sufficient amount of fresh water for toilet and laundry and other purposes involves a greater expenditure than can be allowed even if the capacity of the distilling plants is adequate to the demand.

Airing bedding.—A matter of great hygienic importance, and one, it seems, that has not been accorded sufficient practical recognition, is the present airing of bedding. It has been observed and reported by Surg. W. B. Grove that, when for any reason bedding was not exposed to the sun for periods of a week or more, cases of tonsilitis began to develop and small abscesses were numerous. Daily or very frequent airings changed this picture, tonsilitis practically disappearing and the skin affections becoming rare, and it is believed also that daily attention to this sanitary measure was largely responsible for the elimination of epidemics of mumps, measles, chicken pox, and scarlatina on certain ships. It is understood that fleet routine called for airing of bedding once a week, but all things considered this is not sufficient, weather and other circumstances permitting.

Ship's barber.—Referring to the hygienic aspect of the ship's barber commented upon in the report for 1908, the bureau desires to point out that a change of water for each individual served is an exceedingly important feature of his work and that any saving which would involve the necessity of using the same water for an unlimited number of men is to be strongly condemned as an insanitary and uncleanly practice. Moreover, an inconvenient separation from a source of supply might at any time lead to neglect in this regard. Provision should be made with a view to preventing the possibility of such an occurrence. A stationary washstand with running water would be the surest means to that end and the bureau invites the department's attention to the desirability of such an arrangement for barbers in all ships, such as authorized on the *Idaho.*

The problem of caring for prisoners on board ship is another feature of ship life deserving hygienic consideration, as on many ships even the best ventilated, such as the *New Hampshire,* the brigs are sanitarily inadequate for prolonged confinement. It is a patent fact that as soon as an individual is forcefully deprived of his autonomy for whatever reason, the obligation devolving upon the authorities with respect to the health of that individual becomes more exacting. In other words, by just so much as he is restricted from exercising his volition in seeking healthful surroundings must these conditions be provided for him. In this sense ship life, at its best, is a species of confinement and it is perhaps not possible to do a great deal in the way of light and ventilation, etc., for prisoners, but it would seem from sanitary reports received that all possible is not done. The deficiencies in the ventilation of brigs should certainly be corrected and it is believed that steps should be taken for the prompt transfer of prisoners undergoing sentences for the graver offenses. Commenting upon this question Surg. A. G. Grunwell says:

> Not only is it unnecessarily severe on prisoners to keep them confined for long periods on board cruising ships, but their presence has a depressing and an evil effect on the ship itself. On the other hand, to make some of the men who gravitate to the brig of every large ship prisoners at large is an even greater disadvantage, for * * * these offenders (against order, discipline, and moral laws) are continually seeking whom they can pervert. The sooner such men are gotten rid of, as far as the service is concerned, the better, for evil influences are in a psychological sense contagious, and numbers of ordinarily good but easily misled young men are thus annually started on careers which eventually terminate in their undoing. The example of misdemeanor (particularly of the criminal type) should be removed as quickly as practicable from the midst of ships' companies, many of whom are mere boys.

It has been frequently remarked with reference to the engineer's force, and particularly the fireroom division, that a considerable portion consists of undersized and undeveloped young men, who, attracted by the little additional pay, have been allowed to change from one of the rates of the deck force to coal passer. This is believed to be a mistake and should be carefully guarded against in the future, as persons of such physique are wanting in the essential stamina to endure the severe test of fireroom watches, and in many instances after a short time become totally unable to perform the duty. The engineer's force is being taxed more and more as the ships increase in size and active cruising is coming to occupy a greater per cent of the year. These young men constitute a weak element in this branch of the service, which is a tremendously vital factor in the preparedness of a ship to enter upon a naval engagement at any time, and a physical standard of requirement should be set and no recession from it permitted.

Moreover, in connection with the endurance the question arises as to whether or not fireroom force is receiving an amount of nourishment proportional to the energy expended. Other navies and the best lines of the merchant marine it is understood have accommodated themselves to the changed condition of steaming and the trying demands upon endurance of their engineer force by serving warm food to the men as they come off watch at night. In the annual sanitary report of the Austro-Hungarian navy, 1906-7, it is stated that one of the measures taken toward combating the spread of tuberculosis in that navy consists in a modification of the diet for the engineer's force, in excess presumably of the ration provided for the deck force. The consideration given these men provide among other features for a hot evening meal, consisting of meat, potatoes, and rice or macaroni, and in addition to this extra allowance of tea and sugar. The quantities of the various constituents of the above-mentioned ration was prescribed by the bureau of sanitation.

Just what factors enter into the causation of the condition known as "heat prostration" observed in those exposed to excessive heat, either solar or artificial, particularly fireroom, is not definitely known to-day. There have been a great many cases in the navy during past years, and though in 1908 a fewer number than usual were reported, and although effort has been and is being made to improve the condition under which the engineer's force performs its duties, there seems no immediate prospect that the condition will cease to be an important type of disability. In any event it represents a condition of more or less interest to the service and is receiving deserved study by medical officers. So little exact information has been contributed on the subject that the bureau recently outlined a plan of investigation and invited a communication of views. with the idea of harmonizing observation and bringing some order out of the present chaos due to the varied manifestations of the condition and the innumerable theories as to its etiology.

A great many casualities of more or less gravity have occurred during the year from different causes, and while it is realized that most of these occurred in spite of precautions employed, and that a certain number of accidents are inevitable, there should be no neglect of effort to reduce the possibility of them in every direction. It is appreciated that the utmost precaution has been directed in handling ordnance and that various devices and special measures are employed to safeguard life. But there seem to be many needless accidents in coaling ship, and the question arises as to whether or not the competitive aspect of this drill and the attempts to break previous coaling records are responsible for careless and dangerous speed. If this is the case, restrictive measures should be adopted so that life and limb need not be jeopardized beyond the normal hazard of the work. The organization of the medical department for battle and the various associated problems continues to receive due attention by the bureau and the medical officers of the different ships. The importance of the whole broad question seems to be generally appreciated, and there is a tendency everywhere to make the best employment of facilities and to place the medical department of ships in a state of preparedness for its utmost usefulness with respect to its function in war. Reports of the medical department organization of practically all but the newest ships are on file, and in conformity with the bureau's aim to keep these up to date notification of such changes as have been made from time to time were sent in and appended as amendments to the original drafts. This should be done regularly. The commanders in chief of the division of the force afloat have also evinced a lively interest in the subject. In the case of the Pacific Fleet a board was convened on December 14, 1908, to investigate and report upon the system of preparation for battle on board of the different vessels of the first and second divisions then in operation, with a view to formulate a uniform scheme for future use. This is in line with the bureau's recommendation in its report for 1907, but it is not apparent that the deliberations of the board in question were as exhaustive or its recomendations as detailed as desirable.

The long contention of the Medical Department for protected battle dressing stations was, during the year embraced by this report, given favorable indorsement, and it is a gratification that on each of the new ships under construction and being planned provision is to be made for two such stations adjacent to hatches, beneath the protective deck and behind armor, the spaces to be specially equipped for the segregation and care of the wounded in action, with additional electric connections for lighting bulbs and fans; lanterns for emergency use; a sink with fresh hot and cold running water; irrigation bottle racks and hooks; steam connection for sterilizer; metal lockers for dressings; and folding shelves for various materials, instruments, apparatus, etc. These spaces will not be fitted up for surgical purposes other than as above stated, except in time of action, in anticipation of which event the furnishings would be completed from the peace-time sick bay and operating room.

Every effort is being made to establish a uniform system of first-aid instruction, including the means of controlling hemorrhage, the use of the dressing packets, the resuscitation of the apparently drowned, and the methods of transportation, etc. Regular instruction is given to all and particular emphasis is laid upon those emergency conditions which would demand immediate measures for their relief. It is of course appreciated that uniformity in this direction is most desirable, if the matter of "first aid to the injured" is to attain the position which medico-military authorities consider it should, for to teach a variety of methods means that men will remember none. Too much emphasis can not be laid upon the necessity of definitely designating a certain number of men who will act as aids to the Medical Department in the event of war and that these men be given special training. The small representation of the Hospital Corps now permitted on the various ships, while sufficient for peace-time requirements, would be greatly inadequate in war, and the deficiency could not be made good at the eleventh hour. The necessity, therefore, of assigning noncombatants, such as musicians, cooks, and mess attendants, as relief crews to assist in succoring the wounded, is indicated. This enlargement of the surgeon's division has been discussed at length in a paper by Surg. J. F. Urie, published in the Naval Medical Bulletin, and has been repeatedly recommended by the bureau. It has been allowed to varying extents by the commanding officers of several ships and it is again brought to the department's attention in the hope that some action may be taken to insure, with more certainty, provision for the numerical efficiency of those charged with the care of the wounded.

Protection of the ears.—In its report for 1908 the bureau advised the department that a substitute known as plasticine was being tested as to its efficiency for the above purpose in comparison with other methods. The exact extent of possible injury to the auditory apparatus as a result of exposure to heavy gun fire is still an undetermined point, but that there is liability of some damage and that all officers and men should as far as practicable take advantage of one of the methods of ear protection now known can not be disputed. The question as to the best method is the only one to be decided. The investigation of this important matter is possible in a practical way only during target practice and it was under such conditions that the merits of the various devices, including plasticine with absorbent wool, have been studied. Surg. W. M. Garton's report upon his investigation of plasticine, on board the U. S. S. *Ohio*, was published in the Naval Medical Bulletin, April, 1909. It shows his studies to have been conducted with care and thoroughness and he stated in no uncertain terms that though plasticine is better than plain cotton, it is completely surpassed by the Elliott ear protector. From this and other information on file the bureau must conclude that at the present time a choice is not possible between even approximately equally efficient devices, and that the Elliott ear protector should be recommended for use in the navy.

FLEET SURGEONS.

In the preceding report reference was invited to the discussion of this subject in the report for 1907, and the department was also advised that the bureau was studying the matter with a view to recommending specific changes in the statute laws and formulating a more comprehensive yet liberal set of regulations for the government of fleet surgeons in the performance of such duties as may be deemed desirable and proper under the changed conditions of fleet organization.

The experience of the past few years and the reported views of several officers who have recently served in the capacity of fleet surgeons, together with the studies above mentioned, indicate an imperative and urgent need that such changes be made as will effectively vest this office with greater authority and give it a broader range of usefulness and a more autonomous opportunity to develop a united efficiency in the medical branch, according to the well-founded ideas of the times and in harmony with the recognized function and accepted practices of similar sanitary officials in civil communities and other government services. The service must be ready to meet new requirements as they arise and adapt itself in every branch to the growing problems of administration. The sudden almost phenomenal development of the navy, especially in the last ten years, has entailed many such problems, one, at least, of which remains unsolved to-day. Reference is made to the medical department of the force afloat which, though an important feature of the service, has been sadly neglected as regards its organization in keeping with the evolution of the new navy in other departments.

The bureau can not be held responsible for the fact that the isolated groups of its representatives on the various ships have not been properly bound together as elements of a cooperating department of the fleet or that the hygienic and sanitary concerns of the fleet as a whole are not thoroughly supervised. This state of affairs exists solely because there is no provision for adequate coordinating heads of the medical departments of the several ships operating together in different parts of the world or for sufficiently authoritative fleet sanitary officers. Under present conditions there is and can be no such thing as a fleet medical department, yet the bureau is entirely without remedy and will continue to be powerless to take conclusive action in effecting this necessary organization afloat unless something is done to correct the laws and relieve the other restrictions under which fleet surgeons now serve. It is needless here to discuss the manifold duties which should properly pertain to this office, the authority which should be reposed in it, and the relation of the office to the Commander in Chief as an integral part of his official family. These have been brought out in more or less details by Medical Inspector H. G. Beyer and others in prepared reports. Suffice it to say that the latitude of the office should be as broad as its special function is important and that the accommodations and facilities afforded the incumbents should be commensurate with the technical ability which he represents and the proper dignity of his rank and position as fleet sanitary adviser.

The sections of the statute law which relate to the surgeon of the fleet and his duties require a liberal amendment to make them conform to present day needs.

The laws in question read as follows:

> SEC. 1373. The President may designate among the surgeons in the service, and appoint to every fleet or squadron an experienced and intelligent surgeon, who shall be denominated "Surgeon of the fleet," and shall be surgeon of the flagship.
>
> SEC. 1374. The surgeon of the fleet shall, in addition to his duties as surgeon of the flagship, examine and approve all requisitions for medical and hospital stores for the squadron or fleet, and inspect their quality. He shall in different cases consult with the surgeons of the several ships, and he shall make and transmit to the Navy Department records of the character and treatment of diseases in the squadron or fleet.

These sections were enacted in the year 1828, but, while they may have suited the conditions at that early date, progress in the medical sciences, the enormous expansion of the naval establishment, and the demands of the age for specialization and a higher degree of perfection in every branch, all have for years operated to make them inappropriate and insufficient.

The book of "Instructions for Medical Officers" indicates in general the duties which should devolve upon fleet surgeons. In the Navy Regulations, also, but to a much less extent, the possibilities of the office are recognized, and effort has been made to increase its field of usefulness more in accordance with the requirements incident to changed conditions than heretofore. Something has been done by these means and certain practices are permitted, but much more of a definite nature is imperative. More generous provisions by the department would perhaps not be legal, for even the present inadequate regulations, though not in actual conflict with the statute law, represent a wide divergence from the law and are not borne out by its provisions. This statement is particularly true of that portion of section 1373 which provides that the surgeon of the fleet "shall be surgeon of the flagship."

Since the advent of applied hygiene and sanitation the duties of the surgeon of the fleet have from necessity become those of a sanitary and administrative officer rather than those of a medical officer and surgeon. The hygienic and sanitary problems inseparable from the navy have developed, coincident with the policy of maneuvering in large assembled forces, to such an extent that the fleet surgeon can no longer be expected to perform the duties of surgeon of the flagship or any single ship and those of the sanitary officer of the fleet as well, and the Navy Regulations recognize the logic of this contention by making it more or less optional with a commander in chief to exempt the fleet surgeon from purely ship duties. No matter how much alive the service may be to the new demands upon the office and no matter how generous the present general disposition of naval authorities toward the office may be, it is manifestly unsatisfactory and unjust to the interest of the medical department to condition the scope and utility of the office, and, hence, a benefit to the service, upon the whim or narrow judgment of any one individual, by whose interpretation of the function of the office its duties may be narrowly circumscribed and made merely nominal.

Section 1373 stands in great need of modification, and it is therefore recommended that the present statute law be amended so that it would read as follows:

> SEC. 1373. The President may designate among the medical officers in the naval service not below the grade of surgeon an officer of ability and merit who shall be appointed to every fleet or squadron and who shall be denominated "Surgeon of the fleet."

In addition, any new legislation should in effect repeal the impracticable provisions of section 1374 and substitute therefor a law framed so as to clearly but not too rigidly define the authority of the surgeon of the fleet with respect to fleet medical department organization, and the sanitary duties that must be performed by him. With this aim in view, therefore, it is further recommended that section 1374 be amended so that it would read as follows:

> SEC. 1374. The surgeon of the fleet shall be held responsible by the commander in chief for the sanitary and hygienic condition of the fleet, and in his duties as sanitary executive of the commander in chief shall receive all necessary authority over other sanitary officers and men within the limits of the command, and be exempt from the ordinary professional duties pertaining to medical officers on board the flagship except in emergency.

The changes in the law as above suggested will give latitude and elasticity for the formulation and promulgation of such regulations and rules as are contemplated and may from time to time be necessary to make the office of surgeon of the fleet all that it properly should be, but it will be time enough to present these for the department's consideration when Congress shall have taken the action herein recommended. The department's favorable indorsement and support of the measures is earnestly requested to the end that the unsatisfactory and unsettled condition under which fleet surgeons now serve, to the great detriment of the service, may be speedily corrected in the interest of the highest attainable efficiency.

HOSPITAL SHIPS.

Though the question of hospital ships has been urged upon the department ever since the Spanish-American war, the efforts of the bureau to secure the provisions they represent received additional impetus from the splendid records of those hospital ships which were employed during the Russo-Japanese war, and these, together with the manifest and growing need of the services of such ships in the United States Navy, prompted the full and detailed discussion of the subject in the two preceding reports. Reference to them is respectfully invited, as little can be added in the way of arguments for the employment of hospital ships or of observed lessons from their employment. In the report for 1908, also, a portion of the record of the U. S. S. *Relief* was submitted, but that early employment of information, which properly belonged to this report, was justified by the great interest in the first results of what, in all but medical circles, was regarded as an experiment. It remains only to complete the record of the *Relief* and emphasize those of her services which were most prominent among the many preconceived features of her usefulness. In general, it may be truthfully said that the *Relief* lived up to the promise of fulfilling her purpose which she gave in the first three months of her experience. The reports received from officers attached to the Atlantic Fleet collectively include evidence of the great variety and efficiency of her services, which more than justify the most sanguine expectations which were entertained, and they also indicate that a gratifying disposition was prevalent to regard with marked favor the presence of the hospital ship while it was a part of that command in the Pacific. As a matter of fact, the principal criticism was to the effect that she was not constantly with the fleet and that she was not equipped with wireless apparatus, by means of which she could have been communicated with when beyond call by signal. Her frequent long absence from the fleet was unquestionably regrettable, depriving her of opportunity to be of assistance on many occasions when her facilities were needed, and, moreover, her departure from San Francisco in advance of the fleet with but few patients on board when she might have carried the temporary sick of the fleet with a view to returning them to duty at Honolulu, was a seeming mistake which suggested a lack of appreciation of her full usefulness. There were many patients on board the different ships, some suffering with epidemic diseases, at the time she sailed, and if all these had been transferred to her the *Kansas*, for instance, would have been relieved from the necessity of improvising isolation compartments and all other ships would have resumed the cruise under the advantageous circumstances of entire freedom from the incumbrance of cases, the sick would have improved more rapidly with the environment and facilities for treatment on the hospital ship, and an increased number of effectives could have been returned to their respective ships for duty immediately they were well. It is one of the important duties of hospital ships, as a factor in the self-sustaining completeness of the force afloat, to maintain the integrity of the fleet and the strength of each ship's company against any disorganizing consequences of disease. There have been a number of instances in which the presence of the *Relief* would have enabled battle ships to remain on the drill grounds instead of interrupting practice to take sick or injured men to port, and other instances of ships being diverted from their course in the cruise with a similar object in view were mentioned in the report for 1908. However, the transfer of the large number of sick from the fighting ships to the hospital ship that was effected on different occasions and the benefits that resulted therefrom, in medical and surgical work and in maintaining the efficiency of the respective crews, have demonstrated, even to the most skeptical, the advantages to be gained by the most ordinary services of such a unit in every fleet. Of special value was the service rendered in behalf of both the sick and the fleet—first, at Magdalena Bay and again at Honolulu. Upon joining the fleet at Magdalena Bay, the *Relief* received on board 160 cases. About 20 of these were declared cases of tuberculosis and half as many were suspects. These patients were not only an incumbrance to the battle ships, but an actual and serious menace to their shipmates. Twenty-four cases required operative treatment; 22 had mental disorders, for whom there was absolutely no suitable place on board the battle ships. At Honolulu 59 cases of contagious diseases were received from the ships. These patients, after all danger of contagion was over, were returned to their respective ships in Australian ports. At Auckland and Sydney a number of patients who would otherwise have had to be left at hospitals ashore were taken on the *Relief* and returned to their ships at Manila. Several deaths from violence and acute diseases occurred on the ships at sea, and the bodies were embalmed on the *Relief* and brought to Manila in metal caskets to be returned to the States and their families. The laboratories, X-ray outfit, and dental establishment were much used by and a valuable help to the medical officers of the fleet. Indeed, the dentist was in great demand and the services of two could have been profitably employed. Until her detachment the *Relief* also served the additional conspicuous helpful purpose of sparing the fleet any delays or inconvenience on account of quarantine at the various ports and of replenishing the surgical and medical supplies of nearly every ship. No such range or type of in-every-way desirable and beneficial services could have been performed by anything short of a hospital ship. The *Relief's* detachment from the fleet was a distinct loss to the efficiency of the fleet, as can be clearly demonstrated.

In all 649 patients were under treatment on board the *Relief*, 44.37+ per cent of those (495) not carried over to 1909 being discharged to duty. One hundred and three surgical operations of various degrees of gravity were performed, all worthy of record. There were 125 admissions for contagious diseases, all demanding more or less rigid isolation. Six deaths occurred, as follows: Appendicitis (practically hopeless when admitted) 1, pneumonia 3, cerebro-spinal meningitis 1, and purpura hemorrhagica 1.

It may be seen that the work accomplished by this ship was considerable and of a gratifying character, yet had she been able to complete the cruise she would not only have continued this fine record of services to the fleet, but have had opportunity to do a splendid international service at Messina, Italy.

As events determined, she was ordered to proceed to Manila and ultimately to serve in the capacity of a hospital at Olongapo, where she arrived January 23, and, by this assignment, her duty as a cruising hospital ship was practically terminated. Prior to this, on or about November 1, she had been detached from the Atlantic Fleet and ordered to proceed for duty with the first and second divisions of the Pacific Fleet, but in an early stage (November 18) of the return trip to the west coast she encountered a heavy storm (typhoon) which so disabled her that it was necessary to abandon the voyage and limp back to Manila. It was following this occurrence that a board of inspection pronounced her unseaworthy and she was ordered to Olongapo as her final disposition. The splendid manner in which both the civil and naval personnel of the *Relief* are reported to have conducted themselves in the face of threatened disaster deserves more than passing notice, and the efficiency and resourcefulness exhibited by officers and men under those trying circumstances can not be too highly commended.

At her present station the *Relief* is performing important duties in supplying the long-felt need for better and more commodious hospital facilities in the immediate vicinity of the large command at Olongapo.

Though the complete history of her short service in active cruising as a component part of the fleet is interesting and instructive as well as convincing, in respect to her usefulness, it has been impossible to even satisfactorily review it in the short space allotted to this subject in this report. The report of her commanding officer during this period, Surg. C. F. Stokes, to whom great credit is due for the success of her operations, and that of her present commanding officer, Surg. A. W. Dunbar, at the close of the calendar year 1908 are conclusive as to the practicability of fully carrying out the professional purposes designed for hospital ships. These reports also go far toward proving the perfectly agreeable and comfortable official adaptability of hospital ships, under the command of medical officers, to fleet organization, toward allaying the alarm of those who apprehend disaster, and, finally, toward supporting the contention that hospital ships are not only desirable, but absolutely necessary as integral parts of every properly organized fleet.

The arrangement and equipment of the *Relief* for hospital purposes were all that was possible with an old ship converted from other uses, but allowing for the fact that she was distinctly a makeshift she met the requirements of her function sufficiently well to constitute a valuable example and teach many important lessons as regards structural arrangements and fittings, equipment, personnel, and administration. With reference to the latter in both the medical and seamen departments of the ship, conditions on the whole worked out satisfactorily, and while the complement was sufficient it was never excessive. The civil force, particularly in the engineer's branch, was originally very shorthanded, but this was later corrected. All reports bear testimony to the high character and ability of the members of the Hospital Corps detachment. The benefit of instruction given at the training school appeared in their ward work, and the almost uniform sobriety, reliability, good conduct ashore, good nature under adverse conditions, and courage and discipline in hours of danger from fire and sea showed their splendid character. Their versatility was often remarked. When men were needed to man boats, to fill the places of some of the six overworked coal passers on the run to Magdalena Bay, or to assist the engineers in repairing the main engine, a call for volunteers always brought quick and abundant response from willing and capable men.

The experience of the *Relief* with hampering defects in machinery has shown the futility of awaiting the time of serious need before placing a hospital ship in service. She was presumably repaired and ready for service in an emergency, and yet within a few weeks after being placed in service it was necessary to retube the boilers, replace patches, retube the main condenser, and practically rebuild the refrigerating plant, not to mention numerous other minor repairs in the steam-engineering department.

On January 17, 1908, effort was made to obtain the designation of another ship of the navy with a view to converting her for hospital purposes, and on November 4, 1908, in anticipation of the return of the fleet from its circumnavigating cruise and resumption of maneuvers on the home drill grounds, attention was invited to the specific need for a hospital ship in Atlantic waters.

The letter submitted under the latter date reads in part as follows:

> Owing to the absence of adequate hospital facilities in the southern part of the United States and in the West Indies, the medical department is most poorly equipped, and the need that steps be immediately taken to correct the deficiency is urgent. The establishment of a hospital at Guantanamo has been the subject of recent recommendation in connection with the formulation of plans for the further movements of the Atlantic Fleet. This recommendation, however, was not approved, it being the opinion of the department that a hospital ship would meet service needs to better advantage.
>
> The San Juan hospital, with but a capacity of 50 beds, is the only hospital in the immediate vicinity of the southern drill grounds. The only other hospital at all within reach of ships cruising in southern waters is at Pensacola, with a capacity of but 40 beds. There are no accommodations for the sick of the general navy at Culebra or Guantanamo, and this latter place seems destined to be, as heretofore, the headquarters of the fleet during the season of drill operations.
>
> One of two alternative procedures is pressingly imperative—either a hospital must be built at Guantanamo, or a hospital ship provided to meet the needs of the fleet. While both will be eventually necessary, the former can be better deferred than the latter. The hospital ship will, with greater certainty, meet the scattered hospital needs of the Caribbean station at present and in the near future. Besides serving purely hospital purposes, such a ship would constitute an ambulance to accompany the fleet in all its movements and could serve the isolated stations within the sphere of its operations, transporting sick from the ships and stations to home hospitals and thus preserving the fleet intact for the prosecution of its drills. The value of the hospital ship has been proven and its right to a place in the organization of the naval establishment has been amply demonstrated.

On November 13, 1908, another letter was addressed to the department suggesting several suitable ships, any one of which would lend itself to conversion for hospital purposes, and a few days later, the bureau's recommendations having been approved, the *Solace* was designated and ordered to leave Magdalena Bay and proceed to the east coast to be fitted up as a hospital ship. The revision and completion of plans for her alteration and equipment were immediately undertaken. Since arriving at the Charleston Navy-Yard, work on her has been progressing according to the plans prepared by the Bureau of Construction and Repair in consultation with this bureau and, although for one reason or another there have been discouraging delays, every effort is being made to have the *Solace* in entire readiness to accompany the Atlantic Fleet to West Indian waters in the fall.

The bureau has repeatedly recommended and desires to again earnestly recommend congressional authorization for the construction of two hospital ships, one for the Atlantic and one for the Pacific coast, which shall be designed and built in their entirety, according to the most approved ideas, for hospital purposes alone. Nothing short of this, as pointed out in previous reports and communications, can be satisfactory or meet the demands, and it should be realized that failure to make this necessary provision is a neglect both of the manifest requirements of the hour and a most indespensable feature of adequate preparation for war. Furthermore, a hospital ship should be with every large division of the force afloat in time of peace in order that her status as a noncombatant may be familiarly demonstrated and in order to impress on the minds of the fighting branches that the articles of the Geneva Convention and Hague Conference must be honored. Any training in this respect and of the personnel of the Medical and Pay Corps and the civil crews in their duties, responsibilities, and relation to each other, in time of peace, must contribute to efficiency in time of war.

STATISTICS.

Statement of the work done by the Record and Pension Division of the Bureau of Medicine and Surgery during the fiscal year ending June 30, 1909.

Pension cases remaining on hand June 30, 1908	30
Received during fiscal year ending June 30, 1909	1, 590
Answered during fiscal year ending June 30, 1909	1, 620
Remaining on hand June 30, 1909	0
Cases for board of medical examiners received and answered	440
Cases for retiring board received and answered	39
Reports of death received	369
Reports of medical survey received and acted upon	2, 941
Cases from Civil Service Commission received and answered	110
Cases of physical rejection, transfer of patients and miscellaneous letters received and answered	4, 672

The increase of medical surveys for 1909 over those for 1908 is 230, which is at the rate of 35.23+ per 1,000 of increase in the average strength of the Navy and Marine Corps. This apparent increase is misleading, however, for the proportion of surveys to total average strength is closely maintained, being in the neighborhood of 17 per 1,000 in both years.

RECRUITING.

The following table shows the record of enlistments and rejections for the year 1908:

Where examined.	Examined.	Accepted.	Color-blind.	Rejected.
Receiving ships:				
Franklin, Norfolk, Va	784	478	8	298
Hancock, New York, N. Y	1, 302	882	12	408
Independence, Mare Island, Cal	573	426	1	146
Lancaster	364	238	1	125
Philadelphia, Puget Sound, Wash	856	424	15	417
Southery, Portsmouth, N. H	37	28	0	9
Texas, Charleston, S. C	37	14	1	22
Wabash, Boston, Mass	332	309	1	22
Total	4, 285	2, 799	39	1, 447
Naval and marine recruiting stations:				
Adrian, Mich	1	1	0	0
Akron, Ohio	81	50	0	31
Albany, N. Y	84	51	0	33
Alexandria, La	25	7	0	18
Anderson, Ind	4	2	0	2
Atlanta, Ga	478	217	21	240
Baltimore, Md	704	355	22	327
Battle Creek, Mich	5	4	0	1
Baton Rouge, La	13	1	0	12
Bay City, Mich	37	27	0	10
Birmingham, Ala	300	106	13	181
Boston, Mass	2, 077	915	68	1, 094
Bradford, Pa	9	2	1	6
Buffalo, N. Y	599	330	6	263
Cadillac, Mich	41	14	1	26
Cedar Rapids, Mich	20	12	0	8
Chattanooga, Tenn	330	119	12	199
Cheyenne, Wyo	46	19	4	23
Chicago, Ill	2, 275	777	71	1, 427
Cincinnati, Ohio	827	397	16	414
Cleveland, Ohio	692	355	29	308
Colorado Springs, Colo	7	4	0	3
Columbus, Ohio	345	137	17	191
Corry, Pa	1	0	0	1
Crowley, La	2	1	0	1
Dallas, Tex	883	515	26	342
Davenport, Iowa	13	9	1	3
Dayton, Ohio	212	89	3	120
Defiance, Ohio	5	1	0	4
Denver, Colo	1, 262	658	89	515
Des Moines, Iowa	73	57	3	13

Where examined.	Examined.	Accepted.	Color-blind.	Rejected.
Naval and marine recruiting stations—Continued.				
Detroit, Mich	945	474	20	451
Donaldsonville, La	1	0	0	1
Du Bois, Pa	18	5	0	13
Dubuque, Iowa	5	4	0	1
Duluth, Minn	157	64	2	91
Dunkirk, N. Y	83	6	11	16
Elkhart, Ind	6	4	0	2
El Paso, Tex	104	62	3	39
El Reno, Okla	4	0	1	3
Enid, Okla	59	29	2	28
Erie, Pa	5	5	0	0
Fargo, N. Dak	15	8	0	7
Findlay, Ohio	11	3	1	7
Flint, Mich	18	5	0	13
Fort Wayne, Ind	148	102	1	45
Fort Worth, Tex	134	60	6	68
Franklin, Pa	19	8	0	11
Galveston, Tex	5	2	0	3
Grand Forks, N. Dak	3	2	0	1
Grand Rapids, Mich	211	144	1	66
Hamilton, Ohio	64	53	0	11
Hartford, Conn	264	142	7	115
Hastings, Nebr	28	19	0	9
Hattiesburg, Miss	20	6	0	14
Hillsdale, Mich	1	1	0	0
Hobart, Okla	5	1	0	4
Houston, Tex	49	13	2	34
Indianapolis, Ind	1,946	1,310	29	607
Ironton, Ohio	30	22	0	8
Jackson, Mich	21	12	2	7
Jackson, Miss	65	22	0	43
Jamestown, N. Y	29	11	0	18
Johnstown, Pa	8	7	0	1
Kalamazoo, Mich	34	22	0	12
Kansas City, Mo	1,653	574	107	972
Knoxville, Tex	267	110	27	130
Lake Charles, La	4	0	0	4
Lansing, Mich	11	6	0	5
Lima, Ohio	57	47	0	10
Lincoln, Nebr	95	71	3	21
Logansport, Ind	2	2	0	0
Lorain, Ohio	3	3	0	0
Los Angeles, Cal	744	469	20	255
Louisville, Ky	162	78	7	77
Madison, Wis	12	4	1	7
Marion, Ohio	12	6	0	6
Massillon, Ohio	14	4	1	9
McComb, Miss	10	5	0	5
Meadville, Pa	4	1	0	3
Memphis, Tenn	58	45	0	13
Meridian, Miss	18	3	0	15
Milwaukee, Wis	591	375	0	216
Minneapolis, Minn	1,180	535	35	610
Mobile, Ala	69	15	3	51
Muncie, Ind	4	2	0	2
Muskegon, Mich	9	4	0	5
Nashville, Tenn	220	78	10	132
Natchez, Miss	11	2	0	9
Newark, N. J	188	107	0	81
New Iberia, La	7	3	0	4
New Orleans, La	1,513	416	33	1,064
New York, N. Y	3,776	2,624	59	1,093
Oklahoma, Okla	705	226	46	433
Olean, N. Y	19	5	1	13
Omaha, Nebr	472	221	43	208
Oshkosh, Wis	19	7	0	12
Peoria, Ill	10	8	0	2
Philadelphia, Pa	3,377	1,651	111	1,615
Pittsburg, Pa	1,613	563	131	919
Pontiac, Mich	3	2	0	1
Providence, R. I	363	171	2	190
Pueblo, Colo	190	144	5	41
Reading, Pa	184	77	7	100
Richmond, Ind	1	1	0	0
Ridgway, Pa	14	3	0	11
Rochester, N. Y	276	182	4	90
Rockford, Ill	28	14	0	14
Saginaw, Mich	108	60	4	44
St. Louis, Mo	2,968	1,248	89	1,631
St. Paul, Minn	73	46	0	27
San Antonio, Tex	165	67	7	91
Sandusky, Ohio	15	13	0	2
Sault Ste. Marie, Mich	3	3	0	0
Seattle, Wash	225	147	0	78

Where examined.	Examined.	Accepted.	Color-blind.	Rejected.
Naval and marine recruiting stations—Continued.				
Shawnee, Okla.	49	19	3	27
Sioux City, Iowa	48	36	6	6
Sioux Falls, S. Dak.	38	29	0	9
South Bend, Ind.	134	92	1	41
Springfield, Ill.	9	7	0	2
Springfield, Ohio	5	4	0	1
Syracuse, N. Y.	350	238	6	106
Terre Haute, Ind	41	38	0	3
Thibadoux, La.	3	0	0	3
Tiffin, Ohio	23	13	0	10
Titusville, Pa	41	3	2	36
Toledo, Ohio	434	212	16	206
Troy, N. Y.	45	27	0	18
Tulsa, Okla	11	6	0	5
Utica, N. Y.	58	40	0	18
Vicksburg, Miss.	10	0	1	9
Vincennes, Ind.	7	5	0	2
Warren, Pa	12	2	0	10
Wesson, Miss	5	1	1	3
Wheeling, W. Va	17	16	0	1
Wichita, Kans	137	70	10	57
Wilmington, Del.	78	51	0	27
Youngstown, Ohio	22	9	0	13
Total	39,018	19,226	1,293	18,499
Ships and shore stations other than naval and marine recruiting stations	5,345	3,442	104	1,799
Grand total	48,648	25,467	1,436	21,745

RECRUITING SUMMARY.

Examined	48,648
Rejected per 1,000 for color-blindness	29.51
Rejected per 1,000 for all causes	476.71
First examinations	42,208

INSANE OF THE NAVY.

Patients from the Navy and Marine Corps in the Government Hospital for the Insane on June 30, 1908		186
Admitted during the fiscal year ending June 30, 1909		97
Total		283
Discharged during the fiscal year ending June 30, 1909 (38 recovered, 6 improved, 10 died, 3 not insane, 4 eloped)		61
Remaining in this institution June 30, 1909		222
Patients from the Navy and Marine Corps in the Mendocino State Hospital for the Insane on June 30, 1908		26
Admitted during fiscal year ending June 30, 1909		33
Total		59
Discharged during the year:		
To Government Hospital for Insane, Washington, D. C	24	
From treatment (improved)	12	
From service (expiration of enlistment)	1	
Died	2	
		39
Remaining in this institution June 30, 1909		20
Patients under treatment in both institutions June 30, 1909		242

NAVAL HOSPITALS, 1908.

Hospitals.	Cases under treatment.				Discharged to duty.				Invalided from service.				Died.				Continued to next year.	Total number of sick days.	Average number daily under treatment.	Average number of days' treatment per case.
	Remaining from last year.	Admissions and readmissions.		Total.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.	Diseases.	Injuries.	Total.	Ratio per 1,000 of cases treated.				
		Diseases.	Injuries.																	
Annapolis, Md	63	507	78	648	480	64	544	839.50	24	8	32	49.38	3	2	5	7.71	30	13,236	36.16	20.42
Canacao, P. I	74	767	84	925	464	61	525	567.56	33	7	40	43.24	15	1	16	17.29	135	34,877	95.29	37.70
Chelsea, Mass	81	445	47	573	394	51	445	776.61	39	5	44	76.78	5	2	7	12.21	72	25,359	69.28	44.25
Las Animas, Colo	57	219	3	279	81	1	82	293.91	68	1	69	247.31	16	1	17	60.93	105	31,446	85.91	112.71
Mare Island, Cal	132	1,339	183	1,654	882	139	1,021	617.28	212	44	256	154.77	14	....	14	8.46	84	55,301	151.09	33.43
Medical School, Washington, D. C.	47	467	80	594	367	74	441	742.42	35	7	42	70.70	3	....	3	5.05	74	19,279	52.67	32.45
Newport, R. I	37	890	98	1,025	792	81	873	851.71	58	9	67	65.36	8	1	9	8.78	42	20,034	54.73	19.54
New York, N. Y	114	686	63	863	527	46	573	663.96	100	10	110	127.46	9	3	12	13.90	82	31,843	87.00	36.89
Norfolk, Va	90	1,215	83	1,388	756	30	786	566.28	113	19	132	95.10	20	1	21	15.13	83	36,330	99.26	26.17
Pensacola, Fla	6	52	2	60	39	2	41	683.33	5	....	5	83.33	2	....	2	33.33	8	2,817	7.70	46.95
Philadelphia, Pa	55	412	59	526	345	49	394	749.04	43	5	48	91.25	10	1	11	20.91	42	19,167	52.36	36.43
Portsmouth, N. H	9	154	18	181	110	12	122	674.03	13	0	13	71.82	2	....	2	11.04	24	5,140	14.04	28.39
Port Royal, S. C	....	4	....	4	3	....	3	720.00	....	....	....	....	....	....	....	....	....	72	.19	18.00
Puget Sound, Wash	18	307	55	380	250	33	283	744.73	51	17	68	178.78	3	2	5	13.15	15	12,104	33.07	31.85
San Juan, P. R	7	82	2	91	63	1	64	703.29	7	1	8	87.91	....	....	....	....	9	2,539	6.93	27.90
Sitka, Alaska	1	13	5	19	14	5	19	1,000.00	....	....	....	....	....	....	....	....	....	284	.77	14.94
Washington, D. C	20	218	....	238	219	....	219	920.19	4	....	4	16.80	....	....	....	....	8	4,602	12.57	19.33
Yokohama, Japan	4	45	7	56	24	3	27	482.14	6	1	7	125.00	1	....	1	17.85	10	3,561	9.72	63.50
Relief (hospital ship)	....	434	58	492	193	22	215	436.99	....	....	....	....	6	....	6	....	3	9,777	26.71	19.87

STATISTICAL CLASSIFICATION.

The following subdivisions summarize the data embraced in the several statistical tables of this report:

1. General view of the effects of disease and injury on the Navy and Marine Corps during the year 1908.
2. *Atlantic Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1908.
3. *Pacific Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1908.
4. *Asiatic Station.*—Names of ships, average complements corrected for time, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1908.
5. *Receiving ships and station ships.*—Names of ships, average complements, admissions and readmissions for disease and injury, sick days, average of patients, transfers to hospitals, discharges from the service, and deaths on each ship for the year 1908.
6. *Navy-yards, marine barracks, and other shore stations.*—Names, average complements, admissions and readmissions for disease and injury, sick days, daily average of patients, transfers to hospitals, discharges from the service, and deaths during the year 1908.
7. *Force afloat.*—General aggregate, 1908.
8. *Force afloat.*—Detailed statement, 1908.
9. *Navy-yards, marine barracks, receiving ships, station ships, and other shore stations.*—General aggregate, 1908.
10. *Navy-yards, marine barracks, receiving ships, station ships, and other shore stations.*—Detailed statement, 1908.
11. *Naval hospitals and hospital ships.*—General aggregate, 1908.
12. *Naval hospitals and hospital ships.*—Detailed statement, 1908.
13. Report of vaccination for the year 1908.
14. *Prevalence of special diseases (relation by scale).*—For the year 1908.
15. Mortuary record for the year 1908.
16. *Deaths in the Navy and Marine Corps (relation by scale).*—During the year 1908.

1. *General view of the effects of disease and injury on the Navy and Marine Corps during the year 1908.*

Average strength of the Navy and Marine Corps[a]	52,913
Average strength shown by reports of medical department[b]	50,984
Average strength of the force afloat[c]	32,181
Admissions and readmissions for disease ashore and afloat	31,154
Ratio per 1,000 of strength	611.05
Ratio per 1,000 for the year 1907	630.08
Ratio per 1,000 for ten years (1897–1906)	649.65
Admissions and readmissions for injuries, ashore and afloat	5,828
Ratio per 1,000 of strength	114.31
Ratio per 1,000 for the year 1907	109.81
Ratio per 1,000 for ten years (1897–1906)	120.04
Total admissions and readmissions to sick list during the year	36,982
Ratio per 1,000 of strength	725.36
Ratio per 1,000 for the year 1907	740.12
Ratio per 1,000 for ten years (1897–1906)	888.18
Daily average of patients	1,485.25
Ratio per 1,000 of strength	29.13
Ratio per 1,000 for the year 1907	30.96
Ratio per 1,000 for ten years (1897–1906)	32.55

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[a] Used in computing ratios of death and discharges from the service for disability.

[b] Used in computing all ratios except those of deaths and discharges from the service for disability.

[c] Exclusive of hospital ships and station ships.

Total number of sick days	543,603
Average for each man of the Navy and Marine Corps	10.66
Average for the year 1907	11.30
Average for ten years (1897–1906)	11.72
Average days for each case treated	14.69
Average for the year 1907	15.27
Average for ten years (1897–1906)	14.62
Discharges from the service for disease	1,460
Ratio per 1,000 of strength	27.59
Ratio per 1,000 for the year 1907	22.40
Ratio per 1,000 for ten years (1897–1906)	29.61
Discharges from the service for injuries	418
Ratio per 1,000 of strength	7.89
Ratio per 1,000 for the year 1907	6.17
Ratio per 1,000 for ten years (1897–1906)	4.34
Total discharges for disability	1,878
Ratio per 1,000 of strength	35.49
Ratio per 1,000 for the year 1907	28.57
Ratio per 1,000 for ten years (1897–1906)	29.70
Deaths from disease	187
Ratio per 1,000 of strength	3.53
Ratio per 1,000 for the year 1907	3.49
Ratio per 1,000 for ten years (1897–1906)	4.38
Deaths from injury (including poisons)	111
Ratio per 1,000 of strength	2.09
Ratio per 1,000 for the year 1907	2.17
Ratio per 1,000 for ten years (1897–1906)	2.24
Total deaths from all causes	[a] 305
Ratio per 1,000 of strength	5.76
Ratio per 1,000 for the year 1907	5.67
Ratio per 1,000 for ten years (1897–1906)	6.63

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, discharges from the service, and deaths on each ship for the year 1908.

2. ATLANTIC STATION.

Name of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
			Disease.	Injury.	Total.							
Alabama	Year	531	91	17	108	203.39	1,093	2.98	5.61	40	....	3
Alliance	...do	100	18	6	24	240.00	263	.72	7.20	....	....	1
Arkansas	92 days	50	42	2	44	880.00	83	.90	4.41	....	....	....
Birmingham	265 days	220	121	42	163	740.90	1,175	4.43	14.57	38	2	1
Castine	89 days	26	30	9	39	1,500.00	106	1.19	11.12	10	....	....
Celtic	70 days	25	28	3	31	1,240.00	126	1.80	13.48	9	....	....
Chester	251 days	234	161	42	203	867.52	1,168	4.65	13.63	19	2	....
Chicago	241 days	210	136	34	170	809.52	1,045	4.33	13.57	20	....	....
Connecticut	Year	934	507	165	672	719.48	3,859	10.54	11.28	33	2	2
Culgoa	...do	118	80	28	108	915.25	634	1.73	14.66	13	....	....
Des Moines	...do	288	353	61	414	1,437.50	2,226	6.08	21.11	33	....	....
Dolphin	...do	165	80	11	91	551.51	191	.52	3.15	35	....	....
Dubuque	...do	157	118	16	134	853.50	527	1.44	9.17	13	....	....
Eagle	...do	63	16	8	24	380.95	154	.42	6.66	5	....	....
Fish Hawk	...do	41	23	8	31	756.09	185	.50	12.19	2	1	....
Georgia	...do	846	269	55	324	382.97	4,172	11.39	13.46	42	....	1
Hartford	131 days	167	102	34	136	814.37	508	3.88	8.31	6	....	....
Hist	Year	73	40	13	53	726.02	140	.38	5.21	15	....	....
Idaho	275 days	459	281	66	347	755.91	1,599	5.81	9.50	44	8	1
Illinois	Year	670	288	109	397	592.53	3,048	8.33	12.43	38	....	3
Iowa	182 days	65	49	7	56	861.53	162	.89	6.79	35	....	....
Kansas	Year	826	307	77	384	864.89	4,203	11.48	13.89	....	....	....
Kearsarge	...do	681	158	40	198	290.74	2,026	5.53	8.12	27	1	2
Kentucky	...do	665	292	53	345	518.79	2,900	7.92	11.91	32	....	2
Louisiana	...do	892	436	235	671	752.24	4,978	13.60	15.24	20	....	....

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[a] Includes 7 deaths not embraced in returns.

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, etc.—Continued.

2. ATLANTIC STATION—Continued.

Names of ship.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
			Disease.	Injury.	Total.							
Marietta	Year	139	164	26	190	1,366.90	1,189	3.25	23.38	14	....	....
Mayflower	...do	174	70	15	85	488.50	322	.88	5.05	44	1	....
Minnesota	...do	872	343	70	413	473.62	2,658	7.26	8.32	17	....	....
Mississippi	334 days	606	272	59	331	546.20	3,002	8.98	13.52	79	....	3
Missouri	Year	745	294	91	385	516.24	2,376	6.49	8.71	32	....	3
Montana	184 days	390	255	48	303	776.92	1,563	8.49	10.94	79	....	2
Montgomery	Year	150	46	5	51	340.00	58	.16	1.07	34	....	....
Nevada	90 days	45	31	11	42	933.33	210	2.33	12.73	4	....	1
New Hampshire	288 days	627	204	49	253	403.50	1,469	5.10	6.41	72	4	1
New Jersey	Year	809	325	116	441	545.11	3,193	8.72	10.78	44	....	5
North Carolina	239 days	529	294	65	359	678.63	1,736	7.26	8.96	86	....	1
Ohio	Year	726	233	59	292	402.20	2,496	6.82	9.39	31	....	1
Olympia	89 days	101	109	18	127	1,257.42	361	4.05	9.75	12	....	....
Paducah	Year	140	105	14	119	850.00	508	1.38	9.85	16	....	....
Panther	...do	206	138	36	174	844.66	1,006	2.75	13.34	23	....	....
Prairie	...do	240	75	14	89	370.83	653	1.78	7.42	22	....	1
Puritan	...do	25	13	1	14	560.00	54	.15	6.00	2	....	....
Rhode Island	...do	801	633	132	765	930.08	5,718	15.62	19.50	40	2	3
Salem	153 days	137	80	28	108	788.32	366	2.39	3.05	47	....	....
Scorpion	243 days	65	37	5	42	646.15	176	.72	4.89	14	....	....
Tacoma	Year	280	283	34	317	1,132.14	2,012	5.49	19.61	52	....	1
Torpedo flotilla, third division.	...do	163	148	30	178	1,092.02	800	2.18	13.37	31	2	....
Vermont	...do	848	741	165	906	1,068.39	5,551	15.17	17.89	55	....	3
Virginia	...do	832	432	116	548	658.65	2,783	7.60	9.13	27	....	1
Wasp	23 days	2	3	.....	3	1,500.00	9	.39	.62	3	....	....
Wisconsin	275 days	483	255	61	316	654.24	1,949	7.08	8.30	45	....	3
Wolverine	Year	97	72	21	93	958.76	1,051	2.87	29.58	1	....	....
Yankee	169 days	25	66	14	80	3,200.00	236	.64	11.85	18	....	....
Yankton	Year	100	47	26	73	730.00	644	1.76	17.60	16	....	....

3. PACIFIC STATION.

Albany	Year	291	223	50	273	938.14	2,188	5.98	20.55	47	....	....
Annapolis	...do	151	151	21	172	1,139.07	1,653	4.52	29.93	1	1	1
Arethusa	...do	93	126	25	151	1,623.65	1,165	3.18	34.19	42	....	....
Buffalo	...do	319	256	58	314	984.32	2,253	6.16	19.31	71	....	4
California	...do	748	335	67	402	537.43	4,126	11.27	15.06	50	1	5
Charleston	...do	546	718	93	811	1,485.34	3,895	10.67	19.54	60	....	....
Colorado	...do	740	414	128	542	732.43	2,923	7.99	10.80	36	1	2
Glacier	...do	160	171	46	217	1,356.25	1,430	3.91	24.43	21	....	....
Maine	...do	677	354	69	423	624.81	3,806	10.40	15.36	42	....	3
Maryland	...do	790	454	89	543	687.34	4,019	10.98	13.89	25	....	3
Milwaukee	...do	406	88	24	112	275.86	731	2.00	4.90	20	1	1
Nebraska	...do	764	492	76	568	744.76	3,205	8.76	11.46	102	1	....
Pennsylvania	...do	761	430	104	534	701.71	3,333	9.11	11.97	21	1	....
St. Louis	...do	346	197	35	232	670.52	1,014	2.77	8.01	36	3	3
Solace	212 days	75	54	26	80	1,066.66	757	2.07	16.04	21	....	1
South Dakota	340 days	716	535	78	613	856.14	3,119	8.52	11.05	90	....	2
Tennessee	Year	905	406	102	508	561.32	3,520	9.62	10.63	39	2	5
Torpedo flotilla, second division.	...do	575	196	30	226	393.04	691	1.89	3.28	91	....	1
Washington	...do	822	385	115	500	608.27	3,119	8.52	10.36	38	2	2
West Virginia	...do	822	409	45	454	552.31	3,174	8.67	10.54	60	....	....
Wyoming	85 days	48	11	10	21	437.50	86	.23	1.11	9	....	....
Yorktown	Year	179	113	10	123	687.15	610	1.67	9.72	18	....	....

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, etc.—Continued.

4. ASIATIC STATION.

Names of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
Albatross	Year	80	32	6	38	475.00	275	0.75	9.38	3	....	....
Chattanooga	...do	259	130	11	141	544.44	767	2.09	8.07	24	....	....
Cleveland	...do	262	122	27	149	568.70	1,258	3.44	13.12	30	....	3
Concord	...do	173	129	12	141	815.02	840	2.29	13.23	20	....	....
Denver	...do	254	128	8	136	535.43	909	2.48	9.76	45	....	1
Galveston	...do	213	110	18	128	600.93	900	2.46	11.55	20	....	1
Helena	...do	186	125	25	150	806.45	1,259	3.45	18.55	7	....	....
Monadnock	29 days	15	15	1	16	1,066.66	56	1.93	10.21	....	....	....
Rainbow	Year	291	176	23	199	683.84	1,098	3.00	10.31	20	....	....
Ranger	124 days	39	22	4	26	666.66	101	.81	7.86	1	....	....
Samar	296 days	24	38	1	39	1,625.00	332	1.12	38.60	3	....	....
Supply	Year	145	127	15	142	979.31	757	2.06	14.20	15	....	....
Torpedo flotilla, first division.	...do	205	75	17	92	448.72	326	.89	4.34	53	....	....
Villalobos	...do	53	12	2	14	264.15	48	.13	2.45	....	1	2
Wilmington	...do	189	157	23	180	952.38	797	.22	1.16	14	....	2

5. RECEIVING SHIPS AND STATION SHIPS.

Names of ship.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
Franklin	Year	1,908	1,088	143	1,231	646.87	3,881	10.61	5.57	682	285	6
Hancock	...do	863	395	42	437	506.37	1,105	3.02	3.49	344	5	3
Independence	...do	727	183	37	220	302.58	701	1.92	2.64	119	12	1
Lancaster	...do	585	304	37	341	582.91	1,219	3.33	5.69	119	24	1
Wabash	...do	485	151	25	176	362.89	378	1.03	2.12	135	16	2
Mohican	...do	255	79	12	91	356.86	464	1.27	4.98	12	....	....
Newark	290 days	185	135	9	144	778.38	1,430	4.93	21.15	27	....	....
Philadelphia	Year	315	125	33	158	501.58	875	2.39	7.58	47	5	3
Southery and Topeka	...do	436	170	18	188	431.19	1,616	4.42	10.13	53	5	....
Texas	122 days	71	30	7	37	521.12	240	1.96	9.24	1	1	....

6. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS.

Location.	Periods in commission.	Average complements corrected for time.	Admissions. Disease.	Injury.	Total.	Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
Navy-yards:												
Boston	Year	462	180	24	204	441.56	804	2.19	4.74	122	13	....
Cavite	...do	647	537	38	575	888.71	2,107	5.75	8.88	167	1	1
Charleston	...do	107	50	4	54	504.67	1,461	3.99	37.29	2	16	1
Mare Island	...do	495	389	59	448	905.05	1,545	4.22	10.84	117	31	1
New York	...do	455	232	45	277	608.79	1,278	3.49	7.67	94	5	2
Norfolk	...do	377	291	71	362	960.21	1,864	5.09	13.50	124	47	1
Pensacola	...do	156	84	16	100	641.02	467	1.27	8.14	22	2	1
Philadelphia	...do	317	343	49	392	1,236.59	1,368	3.73	11.76	83	51	....
Portsmouth	...do	154	74	27	101	655.84	317	.86	5.58	36	....	1
Port Royal	...do	23	17	5	22	956.52	114	.31	13.47	3	....	1
Puget Sound	...do	244	76	11	87	356.56	172	.47	1.92	69	1	....
Washington	...do	315	217	51	268	850.79	767	2.09	6.68	162	7	....
Marine barracks and camps:												
Culebra	...do	31	15	2	17	548.38	340	.92	29.67	1	....	....
Panama	...do	409	928	116	1,044	2,552.57	5,199	14.20	34.71	26	....	1
Pekin	...do	134	90	16	106	791.04	1,536	4.19	31.27	3	....	1
Washington	...do	302	541	81	622	2,059.60	2,126	5.81	19.23	226	36	....

Average complements corrected for time, admissions for disease and injury, sick days, daily average of patients, transfers to hospital, etc.—Continued.

6. NAVY-YARDS, MARINE BARRACKS, AND OTHER SHORE STATIONS—Cont'd.

Location.	Periods in commission.	Average complements corrected for time.	Admissions.			Admission rate per 1,000 of strength.	Sick days.	Daily average of patients.	Ratio per 1,000 of force sick daily.	Transferred to hospital.	Invalided from service.	Deaths.
			Disease.	Injury.	Total.							
In Cuba:												
Baracoa	Year	56	46	15	61	1,089.28	307	.84	15.00	5	....	....
Habana	...do	295	171	71	242	820.34	837	2.28	7.73	61	....	1
Isle of Pines	335 days.	28	9	7	16	571.43	89	.26	8.39	1	....	....
Manzanillo	Year	141	101	24	125	886.52	1,665	4.55	32.26	9	....	....
Palmira	...do	77	34	6	40	519.48	183	.50	6.49	1	....	1
Santo Domingo	...do	160	99	24	123	768.75	1,063	2.90	18.12	17	....	1
Sancto Spiritus	...do	78	25	9	34	435.90	291	.79	10.12	4	....	1
Trinidad	...do	80	47	9	56	700.00	264	.72	9.00	8	....	1
Naval stations:												
Academy	...do	1,343	1,484	188	1,672	1,244.97	4,240	11.58	8.62	524	7	5
Dry Tortugas	...do	3	....	....	....	....	....	....	....	....	....	....
Guam	...do	158	119	30	149	943.03	2,123	5.80	36.71	15	2	....
Honolulu	...do	93	60	16	76	817.20	946	2.58	27.74	9	....	4
Indian Head	...do	9	2	1	3	333.33	42	.11	12.22	2	....	....
Iona Island	...do	15	5	1	6	400.00	22	.06	4.00	....	....	....
Key West	...do	95	54	11	65	684.21	846	2.31	24.31	6	1	....
Medical School Dispensary	...do	....	45	3	48	....	305	.83	....	16	....	2
Midway Islands	78 days	16	......	1	1	625.00	77	.98	13.07	1	....	....
Newport Torpedo Station	Year	161	53	19	72	447.20	346	.94	5.84	21	....	....
Newport Training Station	...do	1,886	1,114	208	1,322	700.95	3,858	10.44	5.53	780	156	6
New Orleans	...do	65	58	9	67	1,030.77	380	1.04	16.00	3	1	....
Olongapo	...do	645	907	61	968	1,500.77	3,892	10.63	16.48	195	....	3
Polloc	...do	33	21	2	23	696.96	104	.28	8.48	1	....	....
Portsmouth Prison	263 days.	152	98	25	123	809.21	664	2.52	11.88	19	4	....
Powder Depot	92 days	5	5	3	8	1,600.00	13	.14	7.00	....	....	....
San Francisco	Year	1,095	1,329	130	1,459	1,332.42	17,833	48.72	44.50	18	160	25
San Juan	...do	137	165	15	180	1,313.87	486	1.32	9.63	69	....	2
Washington Dispensary	...do	....	150	3	53	....	220	.60	....	12	....	1
Special duty (Philadelphia)	...do	....	14	5	19	....	114	.31	....	7	....	....

7. *General aggregate, 1908.*

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Government Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases	2	250	16	220	41	1	....	....	....	....	6	1,146
CLASS II.												
General infectious diseases (non-venereal)	92	2,906	196	2,418	712	1	....	....	....	15	48	23,585
CLASS III.												
Constitutional disorders of nutrition.	1	36	9	25	21	....	....	....	....	....	....	400
CLASS IV.												
Diseases of the nervous system	14	976	94	828	228	12	2	....	....	1	13	6,391
CLASS V.												
Diseases of the visual apparatus	8	250	18	214	54	1	2	....	....	....	5	1,846
CLASS VI.												
Diseases of the auditory apparatus	3	245	17	217	47	1	....	....	....	....	....	1,508
CLASS VII.												
Diseases of the olfactory apparatus	.....	68	2	62	7	....	....	....	....	....	1	265
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1.—Diseases of the digestive apparatus	35	3,192	148	3,029	298	1	....	....	....	3	44	15,0[illegible]
Subsidiary class 2.—Diseases of the circulatory apparatus	9	294	41	219	103	4	1	....	....	4	13	3,154
Subsidiary class 3.—Diseases of the respiratory apparatus	18	961	50	908	109	....	1	....	....	....	11	6,983
CLASS IX.												
Diseases of the motory apparatus	6	482	32	435	75	2	....	....	1	....	7	3,490
CLASS X.												
Diseases of the cutaneous apparatus.	27	1,655	78	1,646	73	....	....	....	....	1	40	11,993
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	76	4,965	384	4,724	626	5	....	....	1	3	66	33,524
CLASS XII.												
Cysts and new growths	1	39	3	29	14	....	....	....	....	....	....	275
CLASS XIII.												
Injuries	70	3,429	147	3,175	335	11	....	....	....	54	71	29,659
CLASS XIV.												
Extraneous bodies	.....	18	1	16	3	....	....	....	....	....	....	60
CLASS XV.												
Poisons	2	289	13	272	23	....	....	....	....	6	3	1.580
CLASS XVI.												
Feigned diseases	.....	3	......	3	......	....	....	....	....	....	....	3
Total	364	20,058	1,249	18,440	2,709	39	6	....	2	87	328	141.251

8. *Detailed statement, 1908.*

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		3		3								4
Pediculus		39	1	40								46
Pulex penetrans		2		1		1						26
Scabies	1	171	10	136	40						6	876
Tænia		10	2	12								33
Tinea favosa		1		1								11
Tinea trichophytina		18	1	19								107
Other diseases of this class	1	6	2	8	1							43
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		12	1	8	5							106
Catarrhus epidemicus	13	873	22	880	25						3	4,844
Cholera morbus		2		2								8
Denguis		29	2	31								141
Diphtheria	1	31		3	28					1		85
Dysenteria acuta		30		22	8							301
Dysenteria chronica		5	1	2	4							14
Erysipelas		16	1	11	6							142
Febris cerebro-spinalis		6		1	4					1		63
Febris enterica	9	57	1	22	42					2	1	1,139
Febris intermittens		278	73	326	19						6	1,508
Febris pneumonica	5	95	2	46	48					4	4	1,104
Febris recurrens		8		7	1							50
Febris remittens	1	77	13	82	9							501
Gangræna nosocomialis		1		1								3
Morbilli	11	127		66	72							882
Parotitis epidemica	5	472	10	281	196						10	4,292
Pyæmia		2		1	1							25
Rheumatismus articularis acutus	21	266	38	256	58						11	3,740
Rheumatismus articularis chronicus	3	69	10	48	28						6	998
Rubella	7	29		30	6							181
Scarlatina	3	16		4	15							53
Septicæmia		2	1	2							1	32
Tuberculosis miliaris acuta		1			1							11
Tuberculosis pneumonica acuta	2	27	2	3	22					3	3	319
Tuberculosis pneumonica chronica	3	89	16	16	89	1				1	1	1,665
Tuberculosis of other parts		9	1	1	7					1	1	117
Vaccina	8	249	2	258	1							1,142
Varicella		7		2	5							31
Variola		7		1	4					2		70
Other diseases of this class		14		5	8						1	23
Class III:												
Constitutional disorders of nutrition—												
Anæmia	1	24	8	18	15							332
Debilitas senilis		2	1	1	2							13
Diabetes insipidus		1			1							0
Diabetes mellitus		2			2							15
Hæmophilia		1		1								7
Lithæmia		1		1								5
Scorbutus		1		1								13
Other diseases of this class		4		3	1							15
Class IV:												
Diseases of the nervous system—												
Apoplexia		2		1	1							44
Aphasia		1		1								2
Atrophia muscularis progressiva		1		1								10
Cephalalgia		33		32	1							139
Chorea		2			2							9
Dementia		28	3		31							446
Encephalitis		1	1		2							26

8. *Detailed statement, 1908*—Continued.

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Con.												
Epilepsia	1	51	13	28	33	4						420
Febris continua simplex	4	218	1	209	13						1	1,188
Febris ephemera	1	183	5	188							1	656
Febris thermica		10		10								111
Hemicrania		1		1								1
Hemiplegia		2			1						1	23
Insomnia		1		1								5
Irritatio spinalis		2		2								25
Mania		11	1	2	9						1	181
Melancholia		27	6	2	28					1	2	330
Meningitis	1	3	2	2	4							88
Monoplegia		2		1	1							3
Myelitis		6	5	6	5							24
Nausea marina	1	55	20	67	4	4					1	221
Neuralgia		77	5	77	5							334
Neurasthenia	2	51	11	24	36	2	2					569
Neuritis		34	5	27	9						3	332
Neuritis multiplex		1			1							28
Neurosis hysteroidea		11	1	5	6	1						101
Paralysis glosso-labio-laryngealis		1		1								7
Paranoia	1	6	1	1	7							75
Paraplegia		1			1							54
Prostratio thermica	2	80	1	73	7	1					2	365
Sciatica		21	8	22	7							221
Syncope		11	1	11	1							36
Torticollis spasmodica		4		4								9
Vertigo	1	18	1	16	3						1	116
Other diseases of this class		20	3	13	10							102
CLASS V:												
Diseases of the visual apparatus—												
Amblyopia		6		2	4							28
Asthenopia		5		4	1							49
Astigmatismus		3		3								12
Blepharitis	1			1								8
Cataracta		3			3							5
Chalazion		1		1								1
Choroiditis		1		1								14
Conjunctivitis	3	125	4	121	8						3	608
Corneæ ulcus	1	7	1	8	1							83
Dacryocystitis		2		2								11
Glaucoma		1		1								21
Hordeolus		11		11								41
Hypermetropia		1				1						33
Iritis		27	2	17	12							363
Keratitis	1	9	4	11	2						1	197
Myopia	1	13	5	14	4		1					113
Neuritis optica		1			1							16
Obstructio lacrimalis		2		1	1							44
Pterygium		15	1	6	10							84
Retinitis		7		2	3		1				1	43
Sclerotitis		4		4								29
Trachoma	1	1		1	1							9
Other diseases of this class		5	1	3	3							36
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		3		3								6
Otalgia		4		4								12
Otitis externa		58	1	54	5							345
Otitis media	3	159	13	145	29	1						904
Surditas		16	3	10	9							56
Other diseases of this class		5		1	4							90
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1		1								17
Rhinitis acuta		51		51								167
Rhinitis chronica		11	1	6	5						1	53
Other diseases of this class		5	1	4	2							38

8. *Detailed statement, 1908*—Continued.

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1.—Diseases of the digestive apparatus—												
Adenitis salivosa		5		5								25
Ani prolapsio		1		1								1
Ani rhagades		2	1	3								24
Appendicitis	3	181	31	90	117					2	6	1,388
Catarrhus gastricus acutus	1	113	7	113	5						3	511
Catarrhus gastricus chronicus		26	7	16	16						1	312
Catarrhus intestinalis acutus		116	2	114	3						1	407
Catarrhus intestinalis chronicus		10	2	10	2							57
Cholelithiasis		4		3	1							32
Colica	1	196	7	196	7						1	605
Constipatio	1	51	3	53	2							184
Dentis caries		11		9	1	1						57
Diarrhœa simplex	1	249	2	246	1						5	776
Dyspepsia nervosa		5		5								95
Fistula in ano		27	4	10	20						1	188
Gastralgia		7		6	1							21
Gastric tetany		1								1		1
Glossitis		1		1								4
Hæmatemesis		4	2	5	1							22
Hæmorrhois	2	120	9	86	45							780
Hepatis congestio		16	1	17								95
Hepatitis acuta		3		3								85
Hepatitis chronica	1			1								0
Hypertrophia tonsillaris		8		6	2							64
Icterus		96	6	91	10						1	949
Obstructio intestinalis		1		1								37
Odontalgia		6		6								13
Parulis		8		8								29
Periproctitis		1		1								3
Peritonitis		3		2	1							15
Pharyngitis	1	47		45	2						1	155
Stomatitis		5		3	2							14
Tonsilitis	24	1,841	62	1,849	54						24	7,875
Typhlitis		3		3								18
Ulcus gastricum		1	1	1	1							113
Other diseases of this class		23	1	20	4							137
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A.—Blood vessels—												
Aneurysma		1			1							2
Angina pectoris		6	1	2	3					1	1	108
Cordis dilatatio		3		1						2		9
Cordis hypertrophia		2		1	1							30
Cordis palpitatio		52	10	33	24	3					2	548
Cordis valvularum morbus		37	8	17	27						1	242
Endocarditis		6		3	1	1				1		79
Myocarditis		2			1		1					13
Pericarditis		1			1							13
Phlebitis		7	2	5	4							78
Varix		21	4	9	15						1	139
B.—LYMPHATICS—												
Bronchocele		2			2							21
Lymphadenitis	3	110	16	102	21						6	1,417
Lymphangitis	6	36		40							2	415
Splenypertrophia		1		1								6
Other diseases of this class		7		5	2							34
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma		27	20	32	11		1				3	476
Bronchopneumonitis	2	26	1	18	11							480
Bronchitis acuta	3	464	11	455	19						4	2,654
Bronchitis chronica		53	5	38	18						2	503
Catarrhus bronchialis	8	227	3	227	10						1	1,440
Emphysema pulmonalis		1			1							0
Hæmoptysis		10	2	4	8							56
Laryngitis acuta	1	56	4	58	3							275

8. *Detailed statement, 1908*—Continued.

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS—Con.												
Subsidiary class 3.—Diseases of the respiratory apparatus—Con.												
Laryngitis chronica		3		2	1							80
Œdema pulmonalis		1		1								4
Pleuritis acuta	4	80	3	70	17							898
Pleuritis chronica		7		2	4						1	51
Pleuritis purulenta		5	1	1	5							58
Other diseases of this class		1			1							13
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		1		1								2
Arthritis	2	29	3	25	9							261
Bursitis	1	15	4	15	3						2	165
Contractura		5	1	5	1							71
Gangræna		1		1								61
Myalgia acuta	1	271	9	265	14						2	1,456
Myalgia chronica		28	2	20	10							280
Necrosis		6	1	4	3							90
Ostitis		4			4							24
Osteomyelitis		1			1							11
Periostitis	1	29	3	22	10				1			272
Synovitis		60	8	51	15						2	574
Thecitis		10		9	1							84
Other diseases of this class	1	22	1	17	4	2					1	140
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	17	758	40	766	31					1	17	5,366
Acne		5	1	5	1							66
Carbunculus	1	59	4	59	4						1	348
Cellulitis	3	190	7	187	9						4	1,606
Clavus		7	1	7	1							33
Cutis fissuræ		5		4							1	28
Ecthyma		9		8	1							120
Eczema		33	5	32	5						1	344
Erythema		61	3	62	1						1	316
Furunculus		261	6	259	2						6	1,155
Herpes simplex		4		3	1							22
Herpes zoster	1	12		12							1	69
Impetigo		2		2								14
Lichen		2		2								19
Onychia	1	3		4								21
Paronychia		20	1	19							2	302
Pemphigus		3		3								23
Psoriasis	1	3	1	3	2							61
Ulcus	3	104	2	95	11						3	1,168
Unguis involutus		63	5	66							2	610
Urticaria		28	2	29	1							139
Verruca		3		3								20
Other diseases of this class		20		16	3						1	148
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	13	469	39	440	69						12	7,113
Arthritis gonorrhoica	3	85	15	45	56						2	1,099
Balanitis		30		27	3							212
Calculus		4		2	2							6
Chancroid	6	512	19	494	42						1	2,713
Cystitis		59	7	50	14						2	606
Enuresis		14		6	7	1						70
Epididymitis	17	341	41	377	15						7	4,470
Fistula urinalis		21	3	22	2							100
Gonorrhœa	11	2,054	82	2,091	52						4	4,740
Hæmaturia		10	1	6	5							70
Hydrocele		18	5	14	9							155
Nephritis acuta	1	21	2	12	10				1	1		227
Nephritis chronica	2	14	2	5	11					2		253
Nephrolithiasis		3		1	1						1	91

8. *Detailed statement, 1908*—Continued.

FORCE AFLOAT, EXCLUSIVE OF HOSPITAL SHIP, RECEIVING SHIPS, AND STATION SHIPS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XI—Continued.												
Venereal diseases and diseases of the genito-urinary apparatus—Con												
Ophthalmia gonorrhoica	1	19		7	12						1	136
Orchitis	9	316	29	319	25						10	3,840
Paraphimosis		31	1	26	5						1	246
Perinephritis		2	1	1	2							45
Phimosis	4	207	7	199	10						9	1,865
Prostatitis		14	1	9	6							81
Pyelitis		4		2	2							28
Syphilis consecutiva	6	494	107	410	181	4					12	4,120
Syphilis primitiva	1	70	10	61	20							312
Urethræ strictura		28	4	22	10							276
Urethritis simplex	1	3		3	1							27
Urinæ retentio		5		4	1							60
Varicocele		83	6	43	43						3	532
Verruca acuminata	1	10		7	4							73
Other diseases of this class		24	2	19	6						1	230
CLASS XII:												
Cysts and new growths—												
Adenoma		5	1		6							29
Chondroma		1			1							0
Cystis		15	2	14	3							125
Epithelioma		1			1							0
Lipoma		6		6								51
Osteoma		3		1	2							2
Other diseases of this class	1	8		8	1							68
CLASS XIII:												
Injuries—												
Abrasio	2	51		52							1	264
Ambustio ex calore	5	272	7	246	23					7	8	2,103
Asphyxia		4		2						2		4
Asphyxia ex submersione		24		1						23		27
Concussio		40		32	8							215
Contusio	11	700	20	709	14					1	7	4,617
Deformitas		78	18	40	48	8						712
Fractura	16	340	22	278	82	2				7	9	6,393
Hernia	2	104	37	42	100						1	920
Ictus electricus		3		3								6
Luxatio	3	59	6	57	8					1	2	715
Membranæ tympani ruptio		7		7								31
Membri clades	1	15		15	1							348
Musculi ruptio		4		2	1						1	58
Visceris ruptio		3			1					2		2
Sole excoctus		24		24								101
Stremma	11	671	14	667	15						14	4,498
Vulnus contusum	4	213	4	213	2					4	2	1,639
Vulnus incisum	5	176		171	2					1	7	1,219
Vulnus laceratum	9	503	14	490	17					2	17	4,913
Vulnus punctum		79	4	77	5					1		446
Vulnus sclopeticum	1	28		22	2					3	2	242
Other diseases of this class		31	1	25	6	1						186
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		18	1	16	3							60
CLASS XV:												
Poisons—												
Alcoholismus	2	128	6	120	14					1	1	349
Dermatitis venenata		34	1	33	2							275
Venenum irritans		5		5								14
Venenum neuroticum		20	2	12	4					5	1	135
Vulnus venenatum		84	3	85	1						1	684
Other diseases of this class		18	1	17	2							123
CLASS XVI:												
Feigned diseases—												
Malingering		2		2								2
Pleurisy		1		1								1
Total	364	20,058	1,249	18,440	2,769	39	6		2	87	328	141,251

9. *General aggregate, 1908.*

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases		219	21	62	174	1					3	341
CLASS II.												
General infectious diseases (non-venereal)	85	4,174	666	3,358	1,500	16				16	35	25,461
CLASS III.												
Constitutional disorders of nutrition	2	40	5	18	14	13				1	1	306
CLASS IV.												
Diseases of the nervous system	5	468	44	266	176	51	3	12	1	1	7	2,896
CLASS V.												
Diseases of the visual apparatus	14	512	41	352	117	93					5	3,252
CLASS VI.												
Diseases of the auditory apparatus	5	175	14	64	95	34					1	967
CLASS VII.												
Diseases of the olfactory apparatus		28	1	20	8	1						109
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary Class 1.—Diseases of the digestive apparatus	21	1,758	67	1,219	574	29	2		1	4	17	6,265
Subsidiary Class 2.—Diseases of the circulatory apparatus	12	415	30	98	102	241				10	6	2,068
Subsidiary Class 3.—Diseases of the respiratory apparatus	5	547	32	380	181	8				7	8	3,561
CLASS IX.												
Diseases of the motory apparatus	4	209	18	144	68	16					3	1,265
CLASS X.												
Diseases of the cutaneous apparatus	12	615	16	464	155	8					16	4,176
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	22	2,319	184	1,448	929	108	1			4	35	11,301
CLASS XII.												
Cysts and new growths		29	6	10	21	2	1			1		169
CLASS XIII.												
Injuries	30	1,481	75	907	357	270	1			31	20	10,776
CLASS XIV.												
Extraneous bodies		6			6							
CLASS XV.												
Poisons	3	248	26	195	71	3				5	3	1,025
CLASS XVI.												
Feigned diseases		3	1	4								29
Total	220	13,246	1,247	9,009	4,548	894	8	12	2	80	160	74,584

10. *Detailed statement, 1908.*

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class I:												
Parasites and parasitic diseases—												
Ascaris lumbricoides		1		1								4
Pediculus		19		16	3							36
Pityriasis		2			2							0
Scabies		158	14	16	156							70
Tænia		7	1	5	3							12
Tinea trichophytina		22	2	15	6	1					2	108
Trichinosis		1		1								17
Other diseases of this class		9	4	8	4						1	94
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis		16	3	8	10						1	103
Catarrhus epidemicus	35	532	8	490	82						3	2,078
Cholera morbus		3		3								7
Denguis	3	352	6	348	10						3	1,519
Diphtheria		39		1	38							30
Dysenteria acuta	1	46	7	34	18						2	346
Dysenteria chronica		16	9	10	14						1	156
Erysipelas		14		6	8							97
Febris cerebro-spinalis		19	1	9	4					7		203
Febris enterica	2	63	3	18	43					4	3	861
Febris intermittens	5	661	406	852	218						2	3,429
Febris pneumonica	3	124	4	46	82					2	1	1,241
Febris remittens		453	179	560	70						2	2,556
Morbilli	1	329	2	84	247						1	1,217
Parotitis epidemica	28	898	6	625	295						12	8,686
Pertussis		1			1							0
Pyæmia		1								1		1
Rheumatismus articularis acutus	3	147	18	85	80	1					2	1,105
Rheumatismus articularis chronicus		59	8	28	35	4						310
Rubella		139	1	44	95						1	360
Scarlatina		48		1	47							39
Tuberculosis miliaris acuta		5			3	1				1		31
Tuberculosis pneumonica acuta		25			22	3						123
Tuberculosis pneumonica chronica		60	4	8	48	6				1	1	417
Tuberculosis of other parts		2			1	1						18
Vaccina	4	92	1	95	2							436
Varicella		8		1	7							19
Variola		1			1							0
Other diseases of this class		21		2	19							73
Class III:												
Constitutional disorders of nutrition—												
Anæmia	2	19	2	8	5	10						193
Debilitas senilis			1		1							65
Diabetes insipidus		2	1	1	1	1						3
Diabetes mellitus		5		2	2					1		22
Hæmophilia		2	1		2	1						11
Lithæmia		5		4	1							25
Pseudoleucocythæmia		1			1							0
Purpura hæmorrhagica		1									1	3
Other diseases of this class		5		3	1	1						76
Class IV:												
Diseases of the nervous system—												
Apoplexia		2		1						1		9
Aphasia		2			1	1						9
Cephalalgia	1	30	4	28	5	2						120
Chorea		2			2							0
Dementia	1	19		1	13	1		4			1	174
Epilepsia		57	9	14	26	24					2	412
Febris continua simplex	1	72	2	52	21				1		1	341
Febris ephemera		72	1	59	14							234
Febris thermica		3		2	1							14
Hemicrania		1		1								1
Hemiplegia		5		2	3							55
Insomnia		4		2	2							11
Irritatio spinalis		1	1	1	1							6

10. *Detailed statement, 1908*—Continued.

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Con.												
Mania		8			5			3				80
Melancholia	1	21	1	4	11	5		3				209
Meningitis		1	1	1	1							20
Monoplegia		1		1								42
Myelitis		1			1							5
Nausea marina		1	1			1					1	19
Neuralgia		29	5	28	3	1					2	141
Neurasthenia	1	42	7	18	24	5	3					355
Neuritis		11	2	7	5	1						66
Neuritis multiplex		7		1	3	3						83
Neurosis hysteroidea		16	2	5	10	3						106
Paranoia		6			3	1		2				21
Prostratio thermica		13	2	9	6							73
Sciatica		10	2	6	6							58
Sclerosis multiplex		1				1						4
Sclerosis spinalis posterior			1		1							0
Syncope		7	1	5	1	2						35
Torticollis spasmodica		1		1								2
Vertigo		14	2	11	5							47
Other diseases of this class		8		6	2							87
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia	1	33	1	4		31						471
Amaurosis		1				1						0
Amblyopia	1	15	1	7	4	6						72
Asthenopia		55	4	35	19	5						109
Astigmatismus	1	30	1	8	18	6						118
Blepharitis		3		2		1						40
Cataracta		1			1							0
Chalazion		1		1								2
Choroiditis		1			1							0
Conjunctivitis	3	237	28	244	23	1						932
Corneæ ulcus		9		5	4							36
Glaucoma	1	1				2						30
Hordeolus		12	1	13								34
Hypermetropia		5	2	2	3	1					1	42
Iritis	1	22		10	10	2					1	373
Keratitis		3		1	2							7
Myopia	6	43	2	9	7	35						591
Neuritis optica		3		1	1	1						43
Panophthalmitis		1									1	64
Pterygium		10		1	9							4
Retinitis		1			1							189
Sclerotitis		1			1							0
Trachoma		8		3	5							27
Other diseases of this class		16	1	6	8	1					2	59
CLASS VI:												
Diseases of the auditory apparatus—												
Myringitis		1		1								2
Otalgia		8		7	1							24
Otitis externa	2	19	2	16	6	1						74
Otitis media	2	96	10	35	68	4					1	391
Surditas	1	45	2	5	14	29						476
Other diseases of this class		6			6							0
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus		1			1							0
Rhinitis acuta		19	1	16	4							67
Rhinitis chronica		7		3	3	1						39
Other diseases of this class		1		1								3
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1.—Diseases of the digestive apparatus—												
Adenitis salivosa		2			2							0
Ani rhagades	1	4		3	2							63
Appendicitis	1	109	23	35	92	2	1			1	2	810
Catarrhus gastricus acutus	1	107	3	98	12		1					381
Catarrhus gastricus chronicus	1	31	3	20	15							141

10. *Detailed statement, 1908*—Continued.

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class VIII.—Diseases of the Nutritive Apparatus—Con.												
Subsidiary class 1.—Diseases of the digestive apparatus—Con.												
Catarrhus intestinalis acutus		102		89	13							385
Catarrhus intestinalis chronicus		6		3	3							6
Cholelithiasis		8	1	3	6							19
Colica		55		42	13							118
Constipatio		56	1	50	6						1	99
Dentis caries	1	15	3	10	2	7						90
Diarrhea simplex		176	6	174	8							523
Dyspepsia nervosa		4		3	1							14
Fistula in ano		17	3	4	10	5					1	144
Gastralgia		10		10								32
Hæmatemesis		3		1	1					1		5
Hæmorrhois	3	123	3	31	88	9			1			382
Hepatis congestio		13	2	9	5						1	84
Hepatitis acuta		2		1	1							71
Hepatitis chronica		1			1							0
Hepatitis suppurativa		2			1					1		7
Hypertrophia tonsillaris		18		2	16							10
Icterus		47		26	21							207
Obstructio intestinalis		1			1							0
Odontalgia		2		2								3
Odontolithus		1		1								4
Parulis		2		2								7
Periodontitis		3		2		1						23
Periproctitis		1		1								7
Peritonitis		1								1		1
Pharyngitis	1	33		29	4						1	109
Stomatitis		4		2	2							6
Tonsilitis	11	771	16	549	239						10	2,305
Typhlitis		7	1	5	3							14
Ulcus gastricum		5	1	2	4							23
Other diseases of this class	1	16	1	10	2	5					1	163
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma		3		1						2		18
Angina pectoris		4	1	1	4							12
Arteriosclerosis		2	2	3						1		21
Cordis dilatatio		7		1	2	1				3		45
Cordis hypertrophia		3				3						25
Cordis palpitatio	5	39	4	14	15	18					1	492
Cordis valvularum morbus	4	236	8	24	22	196				3	3	1,274
Endocarditis		3		1	2							14
Myocarditis		2		1						1		17
Pericarditis		3		1	2							4
Phlebitis		9	3	5	5	2						87
Thrombosis		1			1							2
Varix	2	32	4	9	17	12						153
B—Lymphatics—												
Bronchocele		8	1	2	3	4						75
Lymphadenitis	1	31	4	14	16	4					2	270
Lymphangitis		23	3	17	9							105
Other diseases of this class		9		4	4	1						49
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma	1	17	10	12	14	2						138
Bronchopneumonitis		30	1	25	2					2	2	374
Bronchitis acuta	1	277	9	219	67						1	1,386
Bronchitis chronica	1	52	4	16	39	2						238
Catarrhus bronchialis		69	2	56	13						2	234
Emphysema pulmonalis		3	1	1	2					1		48
Hæmoptysis		12	1	3	9					1		22
Laryngitis acuta		19		11	7						1	45
Laryngitis chronica		5		3	2							16
Pleuritis acuta	1	42	2	25	20							195
Pleuritis chronica	1	10	1	5	4	3						145
Pleuritis purulenta		5			1					3	1	391
Other diseases of this class		6	1	4	1	1					1	329

10. *Detailed statement, 1908*—Continued.

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis		4	2	1	4	1						41
Arthritis		23	3	17	7	1					1	220
Arthritis deformans	1	2		2		1						46
Bursitis		10	3	6	4	3						138
Caries		1			1							1
Contractura	3	6			1	8						168
Myalgia acuta		83	4	73	12						2	325
Myalgia chronica		18		9	8	1						82
Necrosis		5		1	4							13
Ostitis			1	1								13
Periostitis		12	2	9	5							127
Synovitis		33	2	15	20							83
Other diseases of this class		12	1	10	2	1						56
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	5	243	6	188	60						6	1,830
Acne	1					1						22
Carbunculus	1	18		13	5						1	100
Cellulitis		53	1	35	19							530
Clavus		16	2	13	3	2						152
Cutis fissuræ		1		1								15
Ecthyma		1		1								11
Eczema	1	34		23	11	1						196
Erythema		6		3	3							11
Furunculus		79		72	6						1	329
Herpes simplex		4		4								10
Herpes zoster		12	1	11	1						1	109
Impetigo		6		5	1							47
Lichen		1		1								5
Onychia		5		1	4							33
Paronychia	1	9		6	4							50
Pemphigus		1		1								10
Pernio		1				1						23
Psoriasis		6		3	2	1						18
Ulcus	1	45	2	34	10	1					3	439
Unguis involutus	2	56	3	38	19						4	346
Urticaria		9	1	8	2							17
Verruca		3			3							0
Other diseases of this class		6		3	2	1						44
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	4	165	13	78	96	1					7	1,596
Arthritis gonorrhoica		47	10	17	38	1					1	476
Balanitis		8		6	1						1	55
Calculus		1			1							0
Chancroid		145	4	110	32						7	736
Cystitis		45	2	20	27							357
Enuresis		42	1	2	21	19					1	308
Epididymitis	2	149	10	109	46						6	1,338
Fistula urinalis		1			1							0
Gonorrhœa	4	905	76	802	168	7					8	2,442
Hæmaturia		6		1	5							15
Hydrocele		12	2	5	9							57
Nephritis acuta		12		4	6					1	1	28
Nephritis chronica		14	1	2	9	1	1			2		112
Nephrolithiasis		3	1	2	2							30
Ophthalmia gonorrhoica		10		1	8	1						98
Orchitis	1	131	9	77	60	2					2	891
Paraphimosis		4		3	1							22
Phimosis	1	74		15	59	1						153
Prostatitis		10		4	6							95
Pyelitis		3		1	1					1		33
Spermatorrhœa		2		1	1							1
Syphilis consecutiva	7	308	48	129	189	44					1	1,480
Syphilis primitiva		38	2	19	21							195

10. *Detailed statement, 1908*—Continued.

NAVY-YARDS, MARINE BARRACKS, RECEIVING SHIPS, STATION SHIPS, AND OTHER SHORE STATIONS—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS XI—Continued:												
Venereal diseases and diseases of the genito-urinary apparatus—Con.												
Urethræ strictura		19		5	13	1						48
Urethritis simplex		4		3	1							15
Urina suppressa		1			1							0
Urinæ retentio		2		1	1							1
Varicocele	3	123	3	13	89	27						519
Verruca acuminata		25		13	11	1						115
Other diseases of this class		10	2	5	5	2						74
CLASS XII:												
Cysts and new growths—												
Angeioma		1			1							0
Caricinoma		1								1		1
Cystis		12		5	7							30
Epithelioma		2	3	2	1	1	1					15
Fibroma		1			1							0
Lipoma		4		1	3							28
Myxoma		2			2							1
Osteoma		3	2	1	4							29
Sarcoma		1			1							0
Other diseases of this class		2	1	1	1	1						65
CLASS XIII:												
Injuries—												
Abrasio	1	39	1	40	1							199
Ambustio ex calore		40	1	30	9						2	399
Asphyxia		1								1		1
Asphyxia ex submersione		22								22		20
Concussio		4		3	1							11
Contusio		189	5	161	28	1					4	1,094
Deformitas	8	243	17	49	38	178					3	2,583
Fames		1		1								2
Fractura	2	145	7	71	71	5	1			2	4	1,351
Hernia	2	182	15	18	101	77					3	1,032
Ictus electricus		6	1	2	5							11
Luxatio		37	5	16	23	3						192
Membranæ tympani ruptio		1	2		1	2						30
Membri clades	1			1								9
Musculi ruptio		1		1								16
Sole excoctus		1		1								6
Stremma	9	297	12	278	38	1					1	1,519
Virium defectio		3		2		1						6
Vulnus contusum	1	40		33	8							295
Vulnus incisum	1	70	3	65	8					1		535
Vulnus laceratum	3	109	5	104	10						3	1,025
Vulnus punctum		25		21	4							147
Vulnus sclopeticum	2	23	1	10	10	1				5		282
Other diseases of this class		2			1	1						11
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum		6			6							0
CLASS XV:												
Poisons—												
Alcoholismus	3	141	10	107	44	1				2		430
Dermatitis venenata		17	1	16	2							91
Venenum irritans		3		3								13
Venenum neuroticum		8	1	3	1	2				3		49
Vulnus venenatum		72	12	50	22						3	370
Other diseases of this class		7	2	7	2							72
CLASS XVI:												
Feigned diseases—												
Dementia		1		1								1
Insanity		1	1	2								25
Melancholia		1		1								3
Total	220	13,246	1,247	9,009	4,548	894	8	12	2	80	160	74,584

11. *General aggregate, 1908.*

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF.

Classification of diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
CLASS I.												
Parasites and parasitic diseases	9	13	217	217	13	....	....	....	3	....	6	5,321
CLASS II.												
General infectious diseases (non-venereal)	232	382	2,555	2,206	494	156	25	.....	9	61	218	102,[illegible]
CLASS III.												
Constitutional disorders of nutrition	8	8	29	21	9	4	4	.....	1	2	4	1,[illegible]
CLASS IV.												
Diseases of the nervous system	40	107	486	219	119	161	24	69	5	9	27	16,86[illegible]
CLASS V.												
Diseases of the visual apparatus	19	16	180	157	20	24	....	....	....	....	14	6,194
CLASS VI.												
Diseases of the auditory apparatus	18	20	158	87	22	68	1	.....	4	....	14	6,284
CLASS VII.												
Diseases of the olfactory apparatus	....	3	15	8	.....	4	....	....	....	....	6	[illegible]
CLASS VIII.												
Diseases of the nutritive apparatus:												
Subsidiary class 1.—Diseases of the digestive apparatus	73	116	900	867	79	45	9	.....	6	10	73	26,[illegible]
Subsidiary class 2.—Diseases of the circulatory apparatus	19	53	221	113	43	87	3	.....	1	12	34	9,[illegible]
Subsidiary class 3.—Diseases of the respiratory apparatus	33	46	318	250	69	35	3	.....	3	8	29	12,[illegible]
CLASS IX.												
Diseases of the motory apparatus	24	28	156	114	28	43	3	.....	....	....	20	9,[illegible]
CLASS X.												
Diseases of the cutaneous apparatus	25	33	234	230	24	7	2	.....	2	2	25	9,[illegible]
CLASS XI.												
Venereal diseases and diseases of the genito-urinary apparatus	207	252	1,662	1,479	187	170	3	.....	17	11	254	82,7[illegible]
CLASS XII.												
Cysts and new growths	4	9	38	35	3	7	2	.....	....	1	3	1,4[illegible]
CLASS XIII.												
Injuries	96	79	721	569	86	123	7	.....	9	10	92	34,[illegible]
CLASS XIV.												
Extraneous bodies	....	1	9	9	....	....	....	....	....	....	1	[illegible]
CLASS XV.												
Poisons	8	15	100	95	5	11	....	1	....	5	6	2,[illegible]
CLASS XVI.												
Feigned diseases	....	1	.....	1	....	....	....	....	....	....	....	1
Total	815	1,182	7,999	6,677	1,201	945	86	70	60	131	826	[illegible]

12. *Detailed statement, 1908.*

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for Insane.				
Class I:												
Parasites and parasitic diseases—												
Pediculus			2	2								3
Pityriasis		1		1								14
Scabies	8	8	197	198	8				3		4	4,344
Tænia	1		3	2	2							267
Tinea trichophytina		1	9	7	1						2	507
Other diseases of this class		3	6	7	2							186
Class II:												
General infectious diseases (non-venereal)—												
Cachexia malarialis			19	10	3	2	1				3	504
Catarrhus epidemicus	14	17	103	123	7	1	1				2	2,524
Denguis		1	9	9							1	143
Diphtheria	32	18	71	117	3						1	2,330
Dysenteria acuta		3	31	27	3					1	3	1,127
Dysenteria chronica	2	5	22	18	3	3					5	1,534
Erysipelas	2	9	13	22	1						1	637
Febris cerebro-spinalis	2	3	4	3	1	1				4		455
Febris enterica	16	56	92	103	38	1	10		3	4	5	7,589
Febris intermittens	11	19	279	221	62	2	1		2		21	7,144
Febris pneumonica	12	24	135	136	16	3				14	2	4,773
Febris recurrens			1	1								41
Febris remittens	5	5	95	68	33	1				1	2	3,539
Morbilli	23	20	333	343	24	1			1	7		5,926
Neuritis endemica		2		2								4
Parotitis epidemica	2	22	500	493	13						18	8,353
Pertussis			1	1								62
Pyæmia	1	2	2	3	1					1		436
Rheumatismus articularis acutus	13	17	150	115	27	22	4		2		10	6,598
Rheumatismus articularis chronicus	10	11	76	45	19	23					10	3,732
Rubella		20	101	120	1							1,961
Scarlatina	3	19	62	65	13				1	4	1	2,124
Septicæmia	3	1	1	1	1					2	1	644
Tuberculosis miliaris acuta		2	6	1	7							80
Tuberculosis pneumonica acuta	2	12	87	33	57	2				3	6	1,595
Tuberculosis pneumonica chronica	76	84	293	66	146	94	6			20	121	37,657
Tuberculosis of other parts	2	3	11	5	8		2				1	480
Vaccina	1		3	4								110
Varicella		2	13	10	3						2	186
Variola		3	5	8								210
Other diseases of this class		2	37	33	4						2	492
Class III:												
Constitutional disorders of nutrition—												
Anæmia	3	2	16	12	3	2	1		1		2	676
Debilitas senilis	1	1	1	1							2	175
Diabetes insipidus			3		2	1						61
Diabetes mellitus	1	2	5	4	2	1	1					348
Hæmophilia			2	2								15
Lithæmia			1		1							34
Pseudoleucocythæmia	1									1		48
Purpura hæmorrhagica		1								1		1
Other diseases of this class	2	2	1	2	1		2					108
Class IV:												
Diseases of the nervous system—												
Apoplexia		2								2		2
Aphasia			1	1								3
Cephalalgia	2		7	4	1	2	1				1	172
Chorea			4	1	1	2						87
Dementia	3	16	60	11	14	15		36	1	1	1	1,613
Encephalitis			1							1		5
Epilepsia	3	10	76	12	15	59					3	2,264
Febris continua simplex	4	14	36	43	11							938
Febris ephemera		3	12	15								144
Febris thermica			2	1	1							3
Hemiplegia	1	1	6		2	2	1			1	2	479
Insomnia		1	2	1		1					1	144

12. *Detailed statement, 1908*—Continued.

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave	To Hospital for Insane.				
CLASS IV—Continued.												
Diseases of the nervous system—Con.												
Irritatio spinalis			1			1						24
Mania	1	2	13	4	2	2		8				213
Melancholia	4	8	48	8	17	13	1	20	1			1,246
Meningitis	1	1	8	1	2	2				4	1	401
Monoplegia	1	1	2	3	1							354
Myelitis	1		3	1	1	1					1	298
Nausea marina	1		6			7						161
Neuralgia		8	7	10								321
Neurasthenia	9	18	79	49	25	13	15				4	3,001
Neuritis	2	6	20	12	6	6					4	1,062
Neuritis multiplex	1	1	5	3	2	2						325
Neurosis hysteroidea		7	18	7	3	12		1			2	556
Paranoia		2	14	5	5	1	1	3			1	259
Paraplegia			2		1	1						275
Prostratio thermica			9	6	2						1	234
Sciatica	1	1	17	10	2	5	2					734
Sclerosis lateralis spastica	1					1						261
Sclerosis spinalis posterior		1	2				1				2	142
Syncope	1		2	1		1					1	77
Vertigo	1	1	11	5	3	3	2					410
Other diseases of this class	2	8	12	5	2	9		1	3		2	606
CLASS V:												
Diseases of the visual apparatus—												
Achromatopsia		1		1								1
Amblyopia	12	1	8	13	1	7						281
Asthenopia	1	1	19	17	1	2					1	224
Astigmatismus			24	22		1					1	143
Cataracta			5	3	1						1	340
Choroiditis		1	1			2						56
Conjunctivitis	1	1	30	26	4	1					1	759
Corneæ ulcus		1	7	5	2						1	338
Hypermetropia			5	5								14
Iritis	1	1	21	18	2	1					2	1,125
Keratitis	1	4	7	7	3	1					1	530
Myopia	2	3	7	9		3						264
Neuritis optica	1		3	1	2						1	429
Obstructio lacrimalis			1	1								33
Pterygium			24	18	3	2					1	741
Retinitis			4	1		1					2	307
Sclerotitis			1	1								4
Trachoma		1	6	4		1					2	364
Other diseases of this class		1	7	5	1	2						243
CLASS VI:												
Diseases of the auditory apparatus—												
Otalgia			1	1								6
Otitis externa	1		8	8		1						161
Otitis media	9	12	112	51	19	49	1		4		9	4,627
Surditas	7	6	28	18	2	16					5	1,112
Other diseases of this class	1	2	9	9	1	2						378
CLASS VII:												
Diseases of the olfactory apparatus—												
Antri abscessus			1								1	13
Rhinitis acuta			3	3								141
Rhinitis chronica		1	9	4		2					4	521
Other diseases of this class		2	2	1		2					1	88
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS:												
Subsidiary class 1.—Diseases of the digestive apparatus—												
Adenitis salivosa			3	2	1							65
Ani rhagades			2	2								46
Appendicitis	21	23	211	183	26	4	5		3	4	30	9,012
Catarrhus gastricus acutus	2	4	18	16	5	2				1		545
Catarrhus gastricus chronicus	4	7	38	29	9	8					3	1,640
Catarrhus intestinalis acutus	2	4	19	19	4	1					1	474
Catarrhus intestinalis chronicus	1	1	5	6			1					165
Cholelithiasis	1	5	6	8		4						455
Colica		1	8	9								99
Constipatio	1	1	17	15	2	1					1	323

12. *Detailed statement, 1908*—Continued.

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS—Con.												
Subsidiary class 1.—Diseases of the digestive apparatus—Con.												
Dentis caries	....	2	6	6	......	2	....	....	....	....	....	307
Diarrhœa simplex	....	......	8	7	......	1	....	....	....	....	....	153
Dyspepsia nervosa	....	1	1	2	......	....	....	....	....	....	....	85
Fistula in ano	6	6	35	37	2	3	....	....	....	....	5	1,928
Gastralgia	....	1	......	1	......	....	....	....	....	....	....	3
Glossitis	....	1	......	......	......	1	....	....	....	....	....	80
Hæmatemesis	....	......	1	1	......	....	....	....	....	....	....	15
Hæmorrhois	11	9	141	126	12	10	1	....	1	....	11	3,514
Hepatis congestio	....	......	4	2	1	....	....	....	....	1	....	48
Hepatitis acuta	....	......	1	1	......	....	....	....	....	....	....	16
Hepatitis chronica	1	1	1	1	......	1	....	....	....	....	1	322
Hepatitis suppurativa	2	3	3	3	1	....	....	....	....	3	1	219
Hypertrophia tonsillaris	1	2	18	19	......	1	....	....	....	....	1	340
Icterus	3	......	31	31	1	....	....	....	1	....	1	1,066
Obstructio intestinalis	....	......	1	1	......	....	....	....	....	....	....	8
Periproctitis	....	2	......	1	1	....	....	....	....	....	....	59
Peritonitis	....	1	2	......	1	1	....	....	....	1	....	171
Pharyngitis	....	2	7	4	2	....	....	....	....	....	3	255
Stomatitis	....	1	5	6	......	....	....	....	....	....	....	230
Tonsillitis	15	27	291	312	8	....	....	....	1	....	12	3,934
Ulcus gastricum	....	2	6	6	1	....	1	....	....	....	....	406
Other diseases of this class	2	9	11	11	2	5	1	....	....	....	3	891
Subsidiary class 2.—Diseases of the circulatory apparatus—												
A—Blood vessels—												
Aneurysma	....	......	2	......	1	1	....	....	....	....	....	106
Angina pectoris	....	1	7	3	2	3	....	....	....	....	....	190
Arteriosclerosis	....	1	......	......	......	....	....	....	....	1	....	129
Cordis dilatatio	3	1	3	3	1	....	....	....	....	3	....	187
Cordis palpitatio	3	8	40	9	14	22	....	....	....	....	6	1,666
Cordis valvularum morbus	4	20	61	14	9	48	....	....	....	3	11	2,522
Embolismus	....	1	......	1	......	....	....	....	....	....	....	7
Endocarditis	....	3	2	1	......	1	....	....	....	3	....	81
Myocarditis	....	3	4	1	......	4	1	....	....	1	....	221
Pericarditis	....	......	3	3	......	....	....	....	....	....	....	50
Phlebitis	....	6	10	10	3	....	....	....	....	....	3	541
Thrombosis	....	1	2	1	......	1	....	....	....	1	....	33
Varix	5	3	35	27	4	4	2	....	1	....	5	1,258
B—Lymphatics—												
Bronchocele	2	......	5	3	2	2	....	....	....	....	....	339
Lymphadenitis	1	2	42	31	6	1	....	....	....	....	7	2,145
Lymphangitis	1	1	5	5	1	....	....	....	....	....	1	144
Other diseases of this class	....	2	......	1	......	....	....	....	....	....	1	33
Subsidiary class 3.—Diseases of the respiratory apparatus—												
Asthma	2	......	29	9	7	10	1	....	....	2	2	712
Bronchopneumonitis	1	3	14	11	5	....	....	....	....	2	....	473
Bronchitis acuta	7	10	85	78	11	2	....	....	2	....	9	2,051
Bronchitis chronica	4	7	78	55	18	9	....	....	....	....	7	2,716
Catarrhus bronchialis	2	1	17	16	3	....	1	....	....	....	....	501
Emphysema pulmonalis	....	......	3	2	......	1	....	....	....	....	....	131
Hæmoptysis	2	1	18	11	6	3	....	....	1	....	....	496
Laryngitis acuta	2	2	10	8	3	1	....	....	....	....	2	374
Laryngitis chronica	....	......	4	2	2	....	....	....	....	....	....	183
Œdema pulmonalis	....	1	......	......	......	....	....	....	....	1	....	1
Pleuritis acuta	6	6	41	37	9	4	....	....	....	1	2	1,770
Pleuritis chronica	2	2	8	7	1	1	1	....	....	1	1	360
Pleuritis purulenta	5	11	9	14	4	3	....	....	....	1	3	2,015
Pneumothorax	....	1	......	......	......	....	....	....	....	....	1	41
Other diseases of this class	....	1	2	......	......	1	....	....	....	....	2	240
CLASS IX:												
Diseases of the motory apparatus—												
Ankylosis	2	5	3	6	......	4	....	....	....	....	....	504
Arthritis	1	7	25	13	8	8	1	....	....	....	3	1,857
Arthritis deformans	2	......	......	1	......	1	....	....	....	....	....	73
Bursitis	....	......	8	6	1	1	....	....	....	....	....	239
Caries	2	......	2	2	1	1	....	....	....	....	....	185

12. *Detailed statement, 1908*—Continued.

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided.				Deserted.	Died.	Continued to next year.	Total number of sick days.
					To hospital.	From service.	On leave.	To Hospital for insane.				
CLASS IX—Continued.												
Diseases of the motory apparatus—Continued.												
Contractura	....	....	3	1	....	2	....	....	....	....	....	85
Myalgia acuta	2	1	19	16	2	2	1	....	....	....	1	745
Myalgia chronica	7	5	20	15	3	10	....	....	....	....	4	1,592
Necrosis	....	....	7	6	....	....	....	....	....	....	1	391
Ostitis	2	....	4	4	2	....	....	....	....	....	....	238
Osteomyelitis	....	4	3	2	2	2	....	....	....	....	1	519
Periostitis	....	....	16	9	4	....	....	....	....	....	3	606
Synovitis	2	2	38	29	3	4	1	....	....	....	5	1,079
Thecitis	....	....	2	1	1	....	....	....	....	....	....	40
Other diseases of this class	4	4	6	3	1	8	....	....	....	....	2	861
CLASS X:												
Diseases of the cutaneous apparatus—												
Abscessus	5	9	82	68	10	1	1	....	1	1	14	2,923
Acne	1	1	1	2	1	....	....	....	....	....	....	19
Carbunculus	....	....	8	7	....	....	....	....	1	....	....	179
Cellulitis	4	6	34	37	2	....	1	....	....	1	3	1,287
Clavus	....	....	2	2	....	....	....	....	....	....	....	40
Eczema	3	3	20	21	3	2	....	....	....	....	....	888
Erythema	....	1	4	5	....	....	....	....	....	....	....	133
Furunculus	1	1	11	9	2	....	....	....	....	....	2	184
Herpes simplex	....	....	4	4	....	....	....	....	....	....	....	32
Herpes zoster	....	....	1	1	....	....	....	....	....	....	....	12
Impetigo	1	....	2	3	....	....	....	....	....	....	....	115
Onychia	....	....	5	5	....	....	....	....	....	....	....	105
Paronychia	....	....	4	4	....	....	....	....	....	....	....	77
Pityriasis	....	2	2	4	....	....	....	....	....	....	....	262
Psoriasis	1	....	4	2	1	2	....	....	....	....	....	135
Ulcus	3	3	20	17	4	....	....	....	....	....	5	1,295
Unguis involutus	1	1	18	20	....	....	....	....	....	....	....	367
Urticaria	1	2	3	6	....	....	....	....	....	....	....	32
Verruca	2	....	3	5	....	....	....	....	....	....	....	165
Other diseases of this class	2	4	6	8	1	2	....	....	....	....	1	749
CLASS XI:												
Venereal diseases and diseases of the genito-urinary apparatus—												
Adenitis inguinalis (venereal)	33	8	170	158	20	4	....	....	2	....	27	8,827
Arthritis gonorrhoica	19	29	107	70	17	42	....	....	1	....	25	6,474
Balanitis	....	....	4	2	1	....	....	....	....	....	1	114
Calculus	....	....	3	3	....	....	....	....	....	....	....	67
Chancroid	7	8	76	67	8	....	....	....	....	....	16	3,121
Cystitis	1	7	43	36	3	2	1	....	....	....	9	2,113
Enuresis	1	1	29	13	....	16	....	....	....	....	2	731
Epididymitis	4	11	56	66	2	1	....	....	....	....	2	2,274
Fistula urinalis	1	....	3	4	....	....	....	....	....	....	....	462
Gonorrhœa	26	56	243	264	24	7	....	....	1	....	29	11,047
Hæmaturia	2	....	8	10	....	....	....	....	....	....	....	182
Hydrocele	3	5	22	22	3	....	....	....	....	....	5	965
Nephritis acuta	2	2	19	6	6	5	....	....	....	2	4	640
Nephritis chronica	2	10	25	11	5	9	1	....	....	7	4	1,397
Nephrolithiasis	....	2	4	4	2	....	....	....	....	....	....	375
Ophthalmia gonorrhoica	3	1	22	13	8	2	....	....	....	....	3	782
Orchitis	13	3	88	90	3	....	....	....	....	....	11	3,370
Paraphimosis	....	....	5	4	1	....	....	....	....	....	....	175
Phimosis	5	4	71	68	4	....	....	....	2	....	6	1,773
Prostatitis	....	2	10	9	2	....	....	....	....	....	1	727
Pyelitis	....	....	3	3	....	....	....	....	....	....	....	142
Spermatorrhœa	....	....	1	1	....	....	....	....	....	....	....	17
Syphilis consecutiva	65	90	420	354	64	65	1	....	8	2	81	28,467
Syphilis primitiva	1	1	37	21	3	3	....	....	2	....	10	2,071
Urethræ strictura	5	2	28	30	2	2	....	....	....	....	1	1,158
Urethritis simplex	....	....	1	1	....	....	....	....	....	....	....	41
Urina suppressa	....	....	1	1	....	....	....	....	....	....	....	24
Urinæ retentio	3	1	2	4	2	....	....	....	....	....	....	160
Varicocele	7	7	138	124	6	9	....	....	1	....	12	4,502
Verruca acuminata	....	....	14	10	1	....	....	....	....	....	3	365
Other diseases of this class	4	2	9	10	....	3	....	....	....	....	2	553

12. *Detailed statement, 1908*—Continued.

NAVAL HOSPITALS AND HOSPITAL-SHIP RELIEF—Continued.

Diseases.	Remaining from last year.	Admitted.	Readmitted.	Discharged to duty.	Invalided. To hospital.	Invalided. From service.	Invalided. On leave.	Invalided. To Hospital for Insane.	Deserted.	Died.	Continued to next year.	Total number of sick days.
CLASS XII:												
Cysts and new growths—												
Adenoma	....	......	5	4	......	....	....	....	....	....	1	178
Angeioma	....	......	1	1	......	....	....	....	....	....	....	1
Carcinoma	1	1	......	1	......	....	....	....	....	1	....	79
Chondroma	....	......	1	1	......	....	....	....	....	....	....	19
Cystis	....	3	9	12	......	....	....	....	....	....	....	220
Epithelioma	....	......	2	1	......	1	....	....	....	....	....	47
Fibroma	....	......	1	1	......	....	....	....	....	....	....	5
Lipoma	....	2	3	4	1	....	....	....	....	....	....	88
Myxoma	....	......	3	2	1	....	....	....	....	....	....	81
Osteoma	....	1	7	4	1	1	2	....	....	....	....	288
Sarcoma	....	2	3	3	......	....	....	....	....	....	2	263
Other diseases of this class	3	......	3	1	......	5	....	....	....	....	....	189
CLASS XIII:												
Injuries—												
Abrasio	....	......	1	1	......	....	....	....	....	....	....	20
Ambustio ex calore	5	......	30	28	1	2	....	....	....	1	3	1,716
Asphyxia ex submersione	....	2	......	......	......	....	....	....	....	2	....	2
Concussio	1	1	10	7	2	1	....	....	....	1	1	282
Contusio	5	6	41	42	5	....	....	....	....	....	5	1,609
Deformitas	10	10	89	39	9	52	....	....	....	....	9	3,008
Fractura	24	18	153	128	18	9	4	....	1	1	34	10,575
Hernia	27	18	223	182	29	28	1	....	6	....	22	10,060
Luxatio	1	4	33	21	3	6	2	....	....	....	6	1,157
Membranæ tympani ruptio	....	......	1	......	......	1	....	....	....	....	....	60
Membri clades	3	7	3	5	......	8	....	....	....	....	....	341
Musculi ruptio	....	......	1	1	......	....	....	....	....	....	....	17
Visceris ruptio	....	1	1	1	......	....	....	....	....	1	....	28
Stremma	4	6	56	51	6	4	....	....	....	....	5	1,748
Vulnus contusum	2	1	6	8	......	....	....	....	....	....	1	248
Vulnus insisum	1	......	9	8	......	....	....	....	....	1	1	371
Vulnus laceratum	6	1	26	24	4	4	....	....	....	....	1	1,575
Vulnus punctum	2	......	10	5	2	3	....	....	....	....	2	375
Vulnus sclopeticum	4	2	17	14	4	1	....	....	1	3	....	931
Other diseases of this class	1	2	11	4	3	4	....	....	1	....	2	549
CLASS XIV:												
Extraneous bodies—												
Corpus extraneum	....	1	9	9	......	....	....	....	....	....	1	151
CLASS XV:												
Poisons—												
Alcoholismus	1	12	59	61	4	2	....	....	....	5	....	1,034
Dermatitis venenata	....	......	6	6	......	....	....	....	....	....	....	126
Venenum irritans	....	1	......	1	......	....	....	....	....	....	....	13
Venenum neuroticum	4	2	8	3	1	8	....	1	....	....	1	382
Vulnus venenatum	1	......	24	21	......	....	....	....	....	....	4	668
Other diseases of this class	2	......	3	3	......	1	....	....	....	....	1	114
CLASS XVI:												
Feigned diseases—												
Ankylosis	....	1	......	1	......	....	....	....	....	....	....	1
Total	815	1,182	7,999	6,677	1,201	945	86	70	60	131	826	327,768

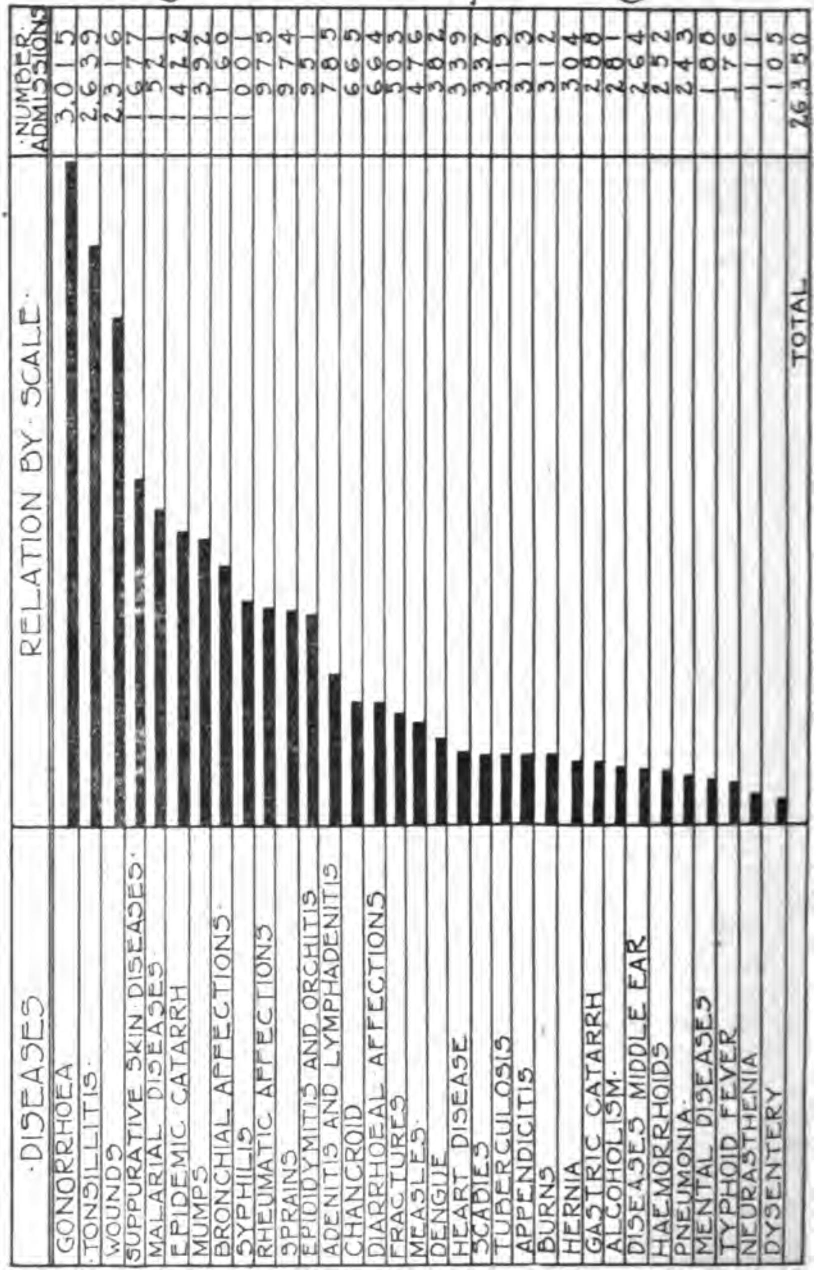
13. *Report of vaccination in the Navy and Marine Corps for the year 1908.*

Classification.	Successful.	Unsuccessful.	Undetermined.	Percentage of success.[a]
CLASS 1.—No evidence of previous vaccination	3,139	2,508	600	55.58
CLASS 2.—Evidence of previous vaccination	7,585	12,891	1,864	37.04
CLASS 3.—Evidence of having had smallpox	25	186	56	11.84
Total	10,749	15,585	2,520	40.81

[a] Based upon results that were determined.

XIV

·Prevalence·of·Special·Diseases·and·Injuries· ·in·the·Navy·and·Marine·Corps·During·Year 1908·



15. *Mortuary record for the Navy and Marine Corps for the year 1908.*

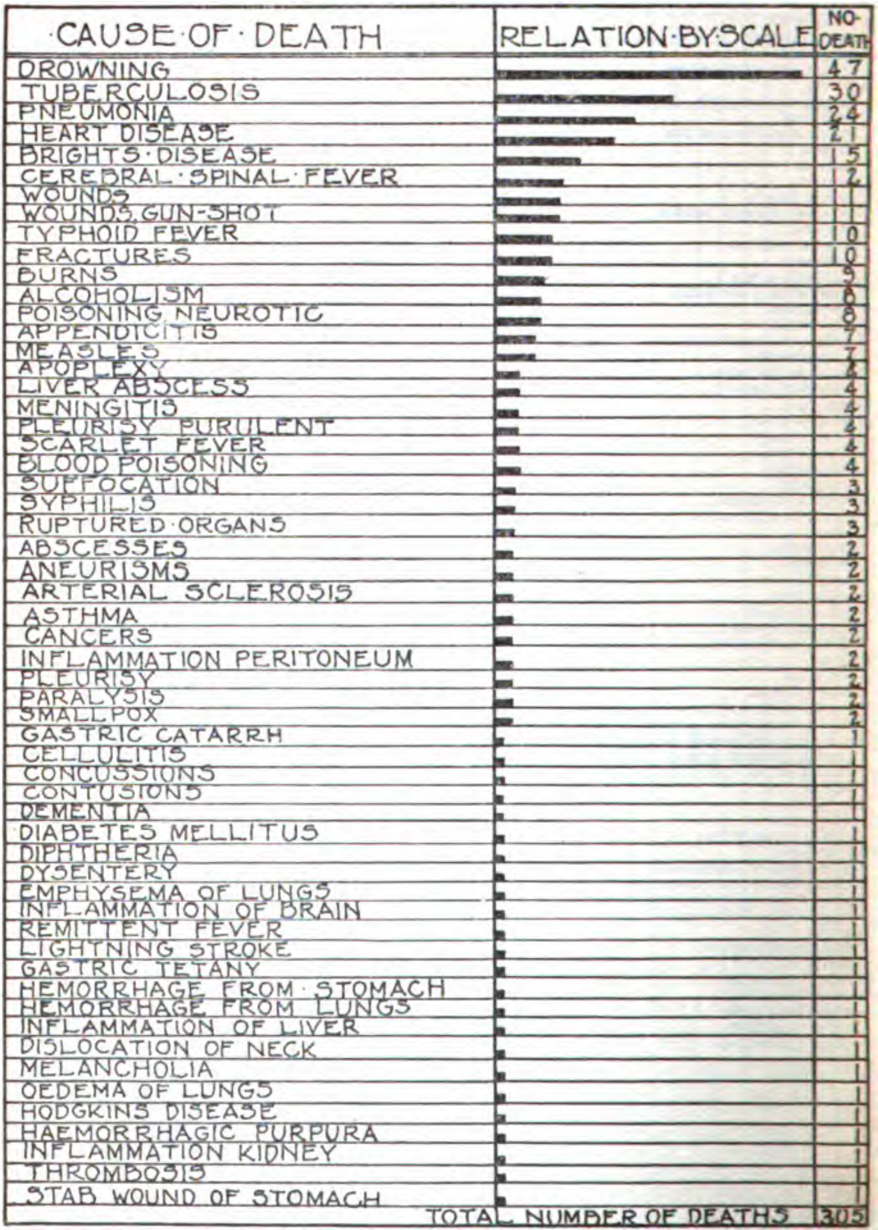
Causes of death.	Hospitals.	Yards and stations.	Vessels.	Elsewhere.	Total.
Abscessus	1		1		2
Alcoholismus	5	2	1		8
Ambustio ex calore	1		7	1	9
Aneurysma		2			2
Angina pectoris			1		1
Apoplexia	2	1		1	4
Appendicitis	4	1	2		7
Arterio sclerosis	1	1			2
Asphyxia		1	2		3
Asphyxia ex submersione	2	22	23		47
Asthma	2				2
Broncho-pneumonitis	2	2			4
Carcinoma	1	1			2
Catarrhus gastricus acuta	1				1
Cellulitis	1				1
Concussio	1				1
Contusio			1		1
Cordis dilatatio	3	3	2		8
Cordis valvularum morbis	3	3			6
Dementia	1				1
Diabetes mellitus		1			1
Diphtheria			1		1
Dysenteria acuta	1				1
Emphysema pulmonalis		1			1
Encephalitis	1				1
Endocarditis	3		1		4
Febris cerebro-spinalis	4	7	1		12
Febris enterica	4	4	2		10
Febris pneumonica	14	2	4		20
Febris remittens	1				1
Fractura	1	2	7		10
Fulminis ictus				1	1
Gastric tetany			1		1
Hæmatemesis		1			1
Hæmoptysis		1			1
Hemiplegia	1				1
Hepatitis congestio	1				1
Hepatitis suppurativa	3	1			4
Luxatio			1		1
Melancholia			1		1
Meningitis	4				4
Morbilli	7				7
Myocarditis	1	1			2
Nephritis acuta	2	1	1		4
Nephritis chronica	7	2	2		11
Œdema pulmonalis	1				1
Paresis				1	1
Peritonitis	1	1			2
Pleuritis acuta	1				1
Pleuritis chronica	1				1
Pleuritis purulenta	1	3			4
Pseudoleucocythemia	1				1
Purpura hæmorrhagia	1				1
Pyæmia	1	1			2
Pyelitis		1			1
Scarlatina	4				4
Septicæmia	2				2
Syphilis consecutiva	2			1	3
Thrombosis	1				1
Tuberculosis miliaris acuta		1			1
Tuberculosis pneumonica acuta	3		3		6
Tuberculosis pneumonica chronica	20	1	1		22
Tuberculosis of other parts			1		1
Variola			2		2
Venenum neuroticum		3	5		8
Visceris ruptio	1		2		3
Vulnus contusum			4		4
Vulnus incisum	1	1	1	1	4
Vulnus laceratum			2	1	3
Vulnus punctum			1		1
Vulnus sclopeticum	3	5	3		11
Total	131	80	87	7	305

XVI

Deaths in the Navy & Marine Corps During Year 1908

Average Strength 52,913

Ratio per 1,000 of Strength 5.76



CAUSE·OF·DEATH	NO. DEATH
DROWNING	47
TUBERCULOSIS	30
PNEUMONIA	24
HEART DISEASE	21
BRIGHTS·DISEASE	15
CEREBRAL·SPINAL·FEVER	12
WOUNDS	11
WOUNDS, GUN-SHOT	11
TYPHOID FEVER	10
FRACTURES	10
BURNS	9
ALCOHOLISM	8
POISONING NEUROTIC	8
APPENDICITIS	7
MEASLES	7
APOPLEXY	4
LIVER ABSCESS	4
MENINGITIS	4
PLEURISY PURULENT	4
SCARLET FEVER	4
BLOOD POISONING	4
SUFFOCATION	3
SYPHILIS	3
RUPTURED ORGANS	3
ABSCESSES	2
ANEURISMS	2
ARTERIAL SCLEROSIS	2
ASTHMA	2
CANCERS	2
INFLAMMATION PERITONEUM	2
PLEURISY	2
PARALYSIS	2
SMALL POX	2
GASTRIC CATARRH	1
CELLULITIS	1
CONCUSSIONS	1
CONTUSIONS	1
DEMENTIA	1
DIABETES MELLITUS	1
DIPHTHERIA	1
DYSENTERY	1
EMPHYSEMA OF LUNGS	1
INFLAMMATION OF BRAIN	1
REMITTENT FEVER	1
LIGHTNING STROKE	1
GASTRIC TETANY	1
HEMORRHAGE FROM·STOMACH	1
HEMORRHAGE FROM LUNGS	1
INFLAMMATION OF LIVER	1
DISLOCATION OF NECK	1
MELANCHOLIA	1
OEDEMA OF LUNGS	1
HODGKINS DISEASE	1
HAEMORRHAGIC PURPURA	1
INFLAMMATION KIDNEY	1
THROMBOSIS	1
STAB WOUND OF STOMACH	1
TOTAL NUMBER OF DEATHS	305

CONCLUSION.

From the very beginning the present administration has believed that it understood the needs of the service from a broad medical point of view. At least it has consistently followed a carefully conceived plan for the betterment of the whole medical establishment, animated by the determination that it should stand out as a vital example of a practical and productive government agency. The bureau has been on the alert to meet current needs, and in administrating the department has been guided by highest standards and a spirit of progress and foresight. It has always been ready to consider suggestions and has sought assistance in every promising direction. Besides employing every opportunity to make material improvements, effort has been made to place individuals as far as possible where best suited, and in general the bureau has tried to use the forces at its command to the utmost advantage. The results which must be apparent to all seem to justify the belief that the scheme of development was wisely forecast.

It may not be amiss to enumerate the noteworthy accomplishments which distinguish the past eight years. Perhaps the most gratifying evidence of the success of the bureau's policy is the apparent enthusiasm and ambition with which medical officers have been imbued. Professional attainment has been encouraged and the highest degree of service has been facilitated by every material provision: The hospitals and equipment have been modernized, and new hospitals built; suitable living quarters for officers have been built in many places; provisions for the care of the sick and injured aboard ship, in point of space and equipment, have been perfected; a medical school for post-graduate training of recent appointees, and the instruction of older officers, subjected to periods of professional stagnation, has been established; a training school for the instruction of hospital corps men in the duties of nursing has been developed; the pay and consequently the efficiency of the Hospital Corps has been increased; a sanatorium for the care of the tubercular sick of the navy has been established; a corps of women nurses has been authorized and organized; the recognition of the need of hospital ships and their control by the medical department has been secured; a quarterly medical bulletin, as a means of periodically communicating information of special value pertaining to the physical welfare of the naval personnel has been created; two editions each of a book of detailed instruction to medical officers and a hospital corps drill manual, for the guidance of the members of the medical department in effecting organizations to meet various requirements and in the performance of other important duties, have been given to the service; a book on naval hygiene, which will be invaluable to the service, has been written and published; and, last, but not least, definite status with proper authority for the medical department and increased rank and numbers in the Medical Corps have been attained.

The plans for the further development of the medical department are clearly outlined and are ready to be carried into effect as rapidly as circumstances will permit or authority is granted. Among the needed additional resources of the medical department which depend upon the latter condition (congressional authorization) are: The reorganization of the Hospital Corps, a corps of dental surgeons, and a medical reserve corps, two specially constructed hospital ships, and a modification of the laws relative to fleet surgeons. As regards future construction, the plans, which have been prepared, anticipate the needs of the service for many years to come.

It seems proper in these closing remarks to briefly invite the department's attention to the value of medical statistics and the need that no data of importance shall be neglected for lack of sufficient assistance in their compilation and elucidation. The lessons to be learned from their collective investigation should not be lost; yet for years the bureau has been handicapped in the preparation of statistical information owing entirely to a numerically inadequate force to properly do the work. Much valuable information is being buried in the files as a result. The medical department of the army employs a force of 14 clerks and draftsmen in its statistical division, whereas the medical department of the navy is allowed but one, and it is believed that if all useful features of the medical records received from ships and stations in every part of the world are to be made available for use in the solution of hygienic problems, this small force will have to be increased. It is recommended that such be allowed.

Finally, an appeal is made for the department's continued interest in the work of this branch of the service, and assistance is respectfully requested in furthering the bureau's aim toward increased efficiency and the highest attainable health conditions, with the sole object in view that the navy may be prepared for any emergency that it may be called upon to meet—not only technically, but as regards the physical condition of personnel.

P. M. Rixey,
Surgeon-General, U. S. Navy.

The Secretary of the Navy.

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